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ORIGINAL ARTICLES.

SOME OF THE VAGARIES OF CROUPOUS PNEUMONIA.¹

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THE deductions presented in this paper are the result of a careful consideration of 150 cases of pneumonia observed in private, consultation, and hospital practice. It occurred to the writer as he examined the records of these cases that it might be of interest to the profession to learn something of the peculiarities of croupous pneumonia as seen in Central New York.

I was surprised to find many cases in which, at some time during the course of the disease, unusual features presented, frequently making a positive diagnosis impossible, and at other times obscuring the diagnosis of pneumonia which had already been made.

The pneumonia of Central New York may be considered the most typical disease of an infectious nature which the physician is called upon to treat. In eighty per cent. of our cases the characteristic chill and fever and all of the other usual symptoms followed each other in regular order, the disease running a typical course within from six to eleven days. In twenty per cent. of our cases, however, there were vagaries which occasionally masked the diagnosis. In these, careful and acute diagnosticians were puzzled during the period which preceded the appearance of characteristic objective and subjective signs.

The 150 cases may be tabulated as follows:

TABLE I.

Age.	Number of Cases.
Between 1 and 5 years.....	2
" 6 " 10 "	2
" 11 " 15 "	3
" 16 " 20 "	31
" 21 " 25 "	29
" 26 " 30 "	18
" 31 " 35 "	15
" 36 " 40 "	13
" 41 " 45 "	12
" 46 " 50 "	11
" 51 " 55 "	4
" 56 " 60 "	2
" 61 " 65 "	3
" 66 " 70 "	2
" 71 " 75 "	1
Over 75 "	2

¹ Read at the last meeting of the American Climatological Association.

The right lung was involved in sixty per cent. of the cases; the left lung in twenty-four per cent.; both lungs in sixteen per cent. The localization of the disease in the various parts of the lungs corresponded very closely with that given by Jurgensen, Grisolle, Busse, and other voluminous writers on this disease. There were twelve cases in which the apex was involved; in seven of these the right apex was diseased; in five, the left.

It may be remarked in connection with *apex-pneumonia* as we see it in Central New York, that, as a rule, it is not associated with active cerebral symptoms which would justify us in speaking of it as synonymous with cerebral pneumonia. Indeed, the majority of these cases presented less delirium than was true when other parts of the lung were involved, and most of them were marked by a typical course, terminating by crisis without further complication. Those forms of mixed infection in which active pneumonia attacks a tuberculous apex are not included; attention will be directed to them in another place. One of the apex cases was a traumatic pneumonia in a boy eleven years of age, who had sustained a fracture of the skull three days before the onset of the disease; his mind was at all times clear, and he made a full recovery.

In fourteen per cent. of the cases in adults the initial chill was absent. This was commonly observed in cases of pneumonia occurring in alcoholics or in aged and enfeebled subjects, and in most of the severer forms of the disease occurring in children. It is rare to find evidence of the occurrence of a chill in the subjects of croupous pneumonia previous to the tenth year of life. The disease is more frequent in early life than it was formerly supposed to be. In a number of our cases of secondary croupous pneumonia, particularly that associated with or following other infectious disease, the chill was absent, the first evidence of the disease being a marked increase of the already existing fever, with an increasing frequency of respiration. In such cases positive physical signs were absent for from one to three days; the symptoms of the primary infection were intensified, there being present a true typhoid condition and characteristic sputum, while the objective symptoms followed on the third or fourth day of the pulmonary affection.

In thirty per cent of the *influenza-pneumonias* of the croupous variety the disease developed gradually

after a period of malaise accompanied by the usual symptoms of the primary affection. Seventy per cent. of the influenza-pneumonias were ushered in with a well-defined chill, severe but characteristic of the ordinary form of the disease. When this occurred we found that the pneumonia was of much shorter duration than in those cases in which the chill was absent; that it was associated with a more sthenic condition of the patient, and gave a decidedly better prognosis. In a few cases of this type we were surprised to find large areas of consolidated lung tissue, sometimes remnants of recent pneumonias, without marked subjective symptoms, but with positive physical signs, in which the condition had not been suspected. Many of these cases dragged along during a number of weeks with but little sputum, although, at times, there was marked rusty sputum during a day or two. During the later weeks, the sputum usually became mucopurulent, nummular, and finally disappeared as gradually as did the physical signs. Most of these patients made a full recovery. Microscopic examination of the sputum showed the presence of the pneumococci of Fränkel and Friedlander and frequently streptococci in abundance. It may be readily understood that these cases aroused a suspicion of existing tuberculosis. The microscope served to differentiate this latent form of pneumonia from the tuberculous infection which we have learned to fear as a complication or sequel of *grippe*.

No cases were more difficult to diagnose than were those of *central pneumonia without chill* occurring in children, occasionally in adults, with marked gastric symptoms, slight jaundice, abdominal distress and pain. In many of these there was but little cough during the first twenty-four hours, hurried respiration and a continuously high temperature being the only accompanying symptoms. The physician who has had much to do with croupous pneumonia occurring during early life, has learned from his experience to be suspicious of its presence when persistently rapid respiration and elevation of temperature are present, even though other marked pulmonary symptoms of a subjective or objective character are not manifested. Abdominal pain misled a number of physicians with whom I saw these cases, and when this was associated with slight jaundice, central pneumonia was not suspected. In the case of a child five years old, with the symptoms just mentioned, we found tympanitic resonance over the lower lobe of the left lung persisting for two days without other physical signs, save bronchophony over a small area. Gradually it became evident that a central pneumonia was spreading toward the surface; bronchial breathing with crepitant râles became clear, and the child died after a three-weeks'

illness with every portion of both lungs consolidated.

The method of Leube, in which, in such cases, he searches at an early stage for an area of bronchophony, and in which after twenty-four or thirty-six hours he has found confirmatory signs of the disease, such as bronchial breathing and crepitant râles, has often proved an important aid, but it, too, has occasionally failed. It may be safely concluded that the cases of pneumonia characterized by absence of chill were, as a rule, of the asthenic variety; that they ran a protracted course, rarely terminating before the eleventh or thirteenth day, usually by lysis, and in a large number there was an alarming typhoid condition which developed during the fourth or sixth day and was evidenced by profound nervous symptoms, muttering delirium, considerable albuminuria, feeble and rapid pulse, death usually ending the scene with less evidence of carbonic-acid poisoning than was present in the equally serious sthenic cases of the disease.

Among the noteworthy pathologic features presented in this asthenic type of pneumonia may be mentioned an ultimate though diffuse infiltration of the lung. Several foci were usually found, and the inflammation was prone to attack both lungs. The stage of red hepatization was short, the lung tissue was soft, tore easily, and there was a great tendency to puriform infiltration. The spleen was enlarged. In a number of these cases pleurisy appeared at an early stage, usually serous, sometimes purulent, but it was not at all uncommon to observe the occurrence of empyema after serous pleurisy. Among the other complications, kidney involvement was common, and in a few cases endocarditis, pericarditis, or meningitis, were the final concomitants. There can be no doubt that these forms of asthenic pneumonia without chills are increasing, and that the greater mortality of pneumonia in many sections of this and other countries is very largely due to this fact.

Another variety of pneumonia to which I wish to call attention, and which is among the more difficult forms of the disease to diagnose, is the one presenting the symptom complex of an acute meningitis. In such instances there was not a single physical sign or subjective symptom to call attention to the lungs, but there was present a clear picture of meningitis, often without respiratory embarrassment. In these cases the deep involvement of the brain is due to pneumococcal toxins. In some of these we found *post-mortem* a limited area of lung tissue involved, usually central, without a single lesion or change in the brain to account for the symptoms during life. These cases are not uncommon.

Three instances of *afebrile pneumonia* were ob-

served in patients aged respectively sixty-five, sixty-seven, and seventy-four years. The first example of this type occurred without any prodromata or initial chill, but all the characteristic physical signs of the disease were presented, the lower lobe of the right lung being involved; there was rusty sputum. This patient had suffered many years from interstitial nephritis accompanied by polyuria, a moderate amount of albuminuria, tense pulse, and arteriosclerosis. The disease terminated favorably by crisis on the sixth day, although the crisis was followed by an alarming condition of the patient, which continued, with profuse perspiration, almost twenty-four hours; the patient ultimately rallied, living six or seven years after his recovery and finally dying of uremia.

The subject of the second case was also an albuminuric, with less marked arteriosclerosis, but with evidences of secondary contracted kidney. The patient died on the fifth day of the disease. The diagnosis was confirmed by autopsy. One-half of the left lung was found to be completely consolidated, and there was positive evidence of the presence of the second stage of croupous pneumonia. The heart was hypertrophied in all directions, and the kidneys had undergone secondary contraction.

The third patient had been previously healthy, had no evidences of renal or cardiac disease, but had been subject to great nervous strain and was in a very much reduced mental and physical condition during the two or three weeks preceding the onset of the disease. The case terminated favorably by lysis.

All of these patients were well nursed, carefully watched by trained attendants, and the temperature taken four times daily. In none did the latter at any time go above 100.1° F.

There seems to be an antagonism between the pneumococcic toxins and blood which is surcharged with urea, or changed as the result of chronic nephritis. This fact has been observed by a number of writers, and we are at the present time carrying on experiments to determine whether this conclusion is justifiable. It may be still further asserted that in all of the cases of afebrile pneumonia which the writer has observed there has been great nervous depression. In several cases there was an afebrile period, varying from one to three days, during which there was progression of pneumonic infiltration without preceding chill. On the third or fourth day the temperature began to rise gradually, reaching its maximum about the sixth day, the disease ultimately becoming asthenic. Death followed in the majority of these cases between the tenth and fourteenth days, with rapid pulse, but without evidences of carbonic-acid poisoning. In these we did not

find preceding albuminuria, but the patients were much reduced in strength and nerve force before the advent of the fatal affection.

Hyperpyrexia was frequently found in the sthenic forms of the disease. We observed it more frequently in hospital than in private practice. In fifteen hospital cases the temperature rose above 105° F. in five. In one of these the temperature reached 107.5° F., remaining there almost twenty-four hours before death occurred. In two in which recovery occurred, the temperature reached 106.2° F.; in private practice, in 135 cases, the temperature rose above 105.5° F. in only ten, seven of which occurred in children. With corresponding involvement of lung tissue, it may be assumed that the temperature in children ranges from one and one-half to two degrees higher than in adults.

Among the unique clinical manifestations observed was a condition to which the writer gave the name "*post-pyrexial delirium*" a number of years ago. Since reporting my first case with this characteristic I have noticed a number in medical literature, all presenting about the same features. Four such cases are included in the collection. In all the disease had been of sthenic variety. The febrile period averaged six days, during which the patients were unusually clear-headed. Following the crisis in from three to ten days, these patients became the subjects of active and wild delirium during which they were restrained with difficulty—a true "*delirium-ferox*," without the slightest increase of body heat. In three such cases the period of delirium continued between seven and twelve days, in the other, the patient was wildly delirious during two weeks, then merged into an irresponsible condition in which she was easily controlled, making a final recovery after the fifth week. The writer does not include in these cases of post-pyrexial delirium those forms of insanity and nerve depression which sometimes follow influenza, for in the majority of such cases there usually was more delirium during the active period of the disease than during the period of convalescence, and finally, the train of nervous symptoms which persisted weeks and months, at times leading to permanent insanity.

Among the vagaries of pneumonia, a peculiar behavior of the pulse in the subjects of *arteriosclerosis*, with or without manifest renal complication, has occasionally been noted. During a period varying from two to four days, the pulse remained tense and slow, rarely being above eighty per minute. After this period, the tension became suddenly lowered, the pulse rapid, irregular, and intermittent, and the patient died with all of the evidences of cardiac asthenia on the fifth or sixth day of the disease. Ex-

perience has taught that this period of calm and slow pulse in the subjects of arteriosclerosis, is something to be feared, for it almost invariably leads to a fatal termination, preceded by a sudden lowering of arterial tone and almost immediate cardiac failure.

Ambulatory pneumonia is rarely observed in Central New York. In the cases reported there was only one in which the diagnosis was made positive by *post-mortem* examination. This case occurred in a man forty-two years of age in whom the disease existed four days, during which time he was up and about. He died within twenty-four hours after his admission to the hospital. The *post-mortem* showed the right lung to be entirely solidified, well advanced in the second stage of the disease, and marked edema of the left lung; the right half of the heart dilated with a large thrombus extending into the pulmonary artery.

Among the cases of *malignant pneumonia* are three which occurred in one family within one week of each other. All resulted fatally before the sixth day of the disease. The toxemia seemed over-powering, the local disturbances being subsidiary.

Traumatic pneumonias are comparatively frequent, particularly after serious head injuries, and it has been the writer's experience to find the larger number during early life. In children this type is almost always fatal.

Aspiration, or the "*Schlück pneumonia*" of the Germans, was observed three times. Two cases resulted in recovery. The disease was protracted, and complications, particularly edema of the lungs, were not unusual. The only case of pneumonia which followed the inhalation of ether was that of a woman whose breast had been amputated for cancer. The disease was of sthenic variety; there was a chill within twenty-four hours after the operation; the disease was severe, but ended favorably by crisis without interfering with the primary union of the wound.

An annoying complication of *senile pneumonia* was the blocking of the bronchial tubes with retained mucus, with ultimate collapse of air-cells, all of which masked the physical signs of pulmonary infiltration.

In spite of the fact that several cases were seen in which there was a characteristic intermittent fever, with at the same time advancing lung involvement, there were no data, microscopic or clinical, which justified the assumption that there was present an added malarial infection. The administration of quinin in these cases failed to influence the fever in any way.

In three cases there was sudden and unexpected death; once during the period of convalescence; twice after crisis, when a favorable prognosis had

been given. These deaths were in all probability due to the effects of the specific toxins upon the heart, and the accompanying acute myocardial degeneration. I do not include those cases in which there had been preceding nephritis, or organic heart disease. In this connection it may be added that the toxemia is by far the most important element to be taken into account in considering the treatment and prognosis of pneumonia, and it is certain that in the majority of cases it stands in no relation to the extent of lung tissue involved. Limited areas of disease have often been associated with more profound evidences of infection than was the case with far-reaching consolidation.

Eighty-five and one-half per cent. of the cases terminated by crisis, and 14.5 per cent. by lysis; the crisis occurred in the majority between the fifth and eighth day of the disease; in one it occurred on the thirteenth. The longest-deferred crisis was noted on the fifteenth day. It was not uncommon to have the fever continue with but slight change until the eighth or tenth day, when crisis occurred. The old notion of the ominous uneven days is not justified. Persistence of fever after the eighth day without positive evidence of fresh involvement of lung tissue or other discoverable complications must lead to the suspicion of tuberculous disease. A sharp rise of temperature during the twenty-four hours preceding the crisis was not uncommon. A decided rise of temperature following crisis, sometimes three or four exacerbations, alarmed many physicians who were not warned of the possibility of such an occurrence. In twenty-four cases there were pseudo-crises. These occurred, as a rule, between the fourth and sixth days; the earliest was observed on the third, the latest on the twelfth day. After the crisis, and during the period of convalescence, it was not uncommon to observe one or two sharp rises of temperature without accompanying leucocytosis, or other demonstrable complication.

The majority of cases of croupus pneumonia showed a marked increase of the polynuclear leucocytes during the febrile period, with a reduction as the temperature declined. In thirty cases in which we made blood counts there were evidences of leucocytosis in twenty-two. The greatest number of white corpuscles were found immediately before the crisis. In all cases examined within thirty-six hours after crisis there was no further evidence of leucocytosis. As a rule, there was no reduction during pseudo-crisis; in two cases an increase of leucocytes was observed. The occurrence and intensity of leucocytosis may be said to depend almost entirely upon the virulence of the pathogenic micro-organism causing the disease. This clinical fact is em-

phasized by the result of animal experimentation. It was impossible to demonstrate satisfactorily any relation between the extent of the disease and the existing leucocytosis. The malignant forms of pneumonia with far-reaching and rapid infiltration, also asthenic cases with or without extensive consolidation, particularly in those subjects who were poorly nourished, gave low average blood-counts. For differential purposes it may be concluded that the presence of leucocytosis in acute febrile disease favors the diagnosis of pneumonia; that its absence favors the diagnosis of typhoid fever or of a severe form of lung inflammation; that marked leucocytosis favors the diagnosis of croupous pneumonia against purulent pleurisy; that the presence of leucocytosis is a favorable, but by no means certain, prognostic sign.

From the cases here considered I conclude that the *fully developed physical signs which justify a positive diagnosis of pneumonia are rarely present before the end of the second day of the disease*, and it is not infrequent to see the third day pass without the development of the characteristic breathing and râles. I have notes of several cases in which, with fully developed physical signs, there was no expectoration. The expectoration was typical in the majority of cases, but it, too, was often atypical in color, consistency, and quantity.

It would draw this paper to too great length if all the complications observed were considered. Without going into detail it may be said that following heart weakness, edema of the lungs was one of the most serious disasters. The various serous and purulent effusions were usually successfully treated. In one case the disease was complicated with abscess of the lung, and the pus was finally located after seven unsuccessful explorations with the hypodermic needle. The abscess was opened and drained, and the patient made a perfect recovery. Albuminuria was present at some time during the course of the disease in over ninety per cent. of the cases; in ten per cent. of these there were evidences of nephritis.

In considering the clinical material, those forms of mixed infection which have been brought to light by the bacteriologic study of the cases cannot be ignored. Under this head are included those cases of tuberculosis which were accompanied by inflammatory processes in the lung caused by the concurrence of two or more infecting agents, one of which was the tubercle bacillus. The fact has been repeatedly demonstrated, experimentally and clinically, that the tubercle bacillus alone, without the presence of other infecting agents, has the power of causing changes in the lung which simulate very closely the various forms of acute and non-tuberculous pneumonia. Clinically, such cases are necessarily differentiated

with great difficulty, and require repeated microscopic examination of the sputum (the centrifuge aiding materially) before a positive diagnosis can be made. It is possible to have two pathologic processes in many cases of pulmonary tuberculosis; one leading to the formation of tubercle, the other giving rise to pneumonic infiltration.

These cases I have classified as follows:

1. Cases of acute fibrinous pneumonia, in which the disease attacks an area of lung tissue, the greater part of which is the seat of infiltrating, but latent, tuberculosis. The previous history includes disease in a distant organ, from which pulmonary tuberculosis took its origin, or with which it was coincident. The latent pulmonary deposit, as a rule, did not give rise to subjective symptoms before the advent of the acute pneumonia.

2. (a) Cases in which there is an acute croupous or catarrhal pneumonia in the immediate vicinity of tuberculous areas, the latter previously recognized, with changes in the infiltrated areas, usually at the apex, the fibrinous disease running its course and terminating by crisis or lysis. This type is not associated with hemoptysis as a prodromal or initial symptom. (b) Cases of chronic or subacute pulmonary tuberculosis in which acute catarrhal or croupous pneumonia attacks distant areas of the diseased or opposite lung, in which there is no early hemoptysis, but in which the tuberculous process is actively progressive, with physical signs of beginning or already completed disorganization.

3. Cases which may be called streptococcus-pneumonia, in which the disease is added either to a latent or an active pulmonary tuberculosis. Hemoptysis is present, usually, during the early stage of the acute exacerbation, or immediately precedes the pneumonia. Here the complication depends largely upon the aspiration of infecting agents from the seat of the original infiltration and ultimate disorganization.

4. Cases of acute catarrhal, occasionally fibrinous, pneumonia with concurrent infection, when, as a result of lowered vitality, resulting usually from child-bearing, alcoholism, or unfavorable environment, there is, in a comparatively short time, rapid disorganization of lung tissue, ultimate cheesy infiltration, with the clinical evidences of coagulation-necrosis, hectic fever, and finally death.

The most unique and at the same time surprising cases of mixed infection which have come to my notice, are those in which there has been no suspicion of existing pulmonary tuberculosis antedating the accompanying pneumonia. There were no lung symptoms until the violent outbreak of croupous disease, and in no case which I have seen had the physi-

cian been consulted to prescribe for or examine the patient. The general appearance had, in many cases, been so good that during the early days of the acute pneumonia no suspicion of the true state of affairs was entertained, and not until it became plain that the pneumonia was not following a typical course and bacteriologic examinations were made, were the facts established which made it positive that a mixed infection was present. In the majority of these cases the added element gave rise to a croupous pneumonia which involved the area of latent disease and the tissues immediately adjacent to it.

While there are in many of these cases no subjective complaints, or objective symptoms of pulmonary tuberculosis before the appearance of pneumonia, careful inquiry and a thorough search reveal the fact that there have been foci in distant organs, from which pulmonary tuberculosis proceeded, or with which it was originally closely related. Many of these patients present good family histories, while their personal record strengthens the conclusion that lung tuberculosis may be present, but dormant, awaiting the advent of some depressing agent or added pulmonary disturbance. In other words, lower by the addition of the second germ the resisting power of the patient who has an unsuspected tuberculosis, and, as a rule, the result will be tissue disorganization and consequent progression of the original disease. I know that this conclusion is contrary to the belief of many who attribute to mixed infection little influence on latent tuberculosis, and who prognosticate favorably in cases of this class, but I give it as being in accord with my own clinical experience.

SCHOOL HYGIENE: LIGHTING OF SCHOOL- ROOMS AND ITS RELATIONS TO ANOM- ALIES OF REFRACTION.

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IT is a well-known fact among oculists that nearly all eyes at birth are far-sighted. As the general development of the body proceeds, the eyes approach nearer and near to the normal, and under certain conditions the relative length of the anteroposterior axis of the eyeball may, by the stretching following abnormally rapid growth, go beyond the normal and produce near-sightedness. Unequal curvatures in the different meridians of the eye, especially of the cornea, produce astigmatism. This condition, with a few exceptions, is always congenital.

Persons whose occupations do not necessitate close vision, such, for instance, as may be found among the Indians, rarely lose all their far-sightedness during development, and as a class are a far-sighted people. On the other hand, it is the oculist's daily

observation that persons who apply themselves to close work from childhood, as a rule, not only lose their far-sightedness, but a very large percentage of them become near-sighted in varying degrees. Especially is this true when the conditions are such as to necessitate a close approximation to the work under unfavorable surroundings. This tendency to the development of near-sightedness is most marked during the years of active growth, when the tissues are soft and unresisting. Any influences which produce an abnormal congestion of the eye with a consequent poor circulation in this organ, tend to favor the development of anomalies of refraction by lowering the resistance of the coats of the eye and increasing the intra-ocular tension. The result is that the organ will gradually yield at its weakest point—the posterior part—producing elongation of the eyeball, a condition constituting myopia.

Persistent use of the eyes in near work, thus strongly exercising the accommodation and convergence, is beyond doubt the chief immediate cause of the development of myopia. The lateral compression of the eyeball by its muscles, together with the congestion of the eye, resulting partially from the effort and partially from the stooped posture which is generally assumed during close vision, are responsible for a great deal of injury to the eyes. Close approximation to work and the consequent unfavorable conditions referred to can only be avoided by having proper and sufficient light, which becomes a source of the greatest relief to the eye already burdened with the effort to overcome any mechanical defect which may be present; the demand upon accommodation and convergence will be much lessened, as it enables the holding of work at a greater distance from the eyes. With proper light the retinal image becomes brighter and more clearly defined, and the ocular irritation resulting from the efforts for greater distinctness is distinctly lessened.

Light reaches the eyes in three different ways, as follows: (1) Direct light, or that which strikes the eye directly from its source. (2) Reflected light, or that which strikes the eye after it has been thrown back by one or more surfaces sufficiently smooth to reflect a considerable number of rays in the same general direction. (3) Diffused light, or that which reaches the eye after it has been reflected from all possible surfaces round about. In diffused light the air is crowded, as it were, with silent lines of light. Back and forth they pass in all directions, every surface receiving light, every little grain and fiber acting as a reflector to send it out again. Thoroughly diffused light does not cast shadows, all surfaces participating in reflection and re-reflection.

The most favorable light, as to quantity and qual-

ity, to work by is the diffused white sunlight from a northern sky. Using this as a basis, we must further consider the direction from which this light is admitted for use, so as to avoid annoying reflections and other disturbing elements. It will be seen that the question of light may be considered under three heads, *viz.*, quality, quantity, and direction.

Quality.—White sunlight is the normal stimulant of the retina, and any light which does not at least nearly correspond in composition with sunlight is defective by just so much, and may become a source of fatigue. Many schoolrooms through the entire day, and nearly all rooms for a portion of it, have no direct sunlight, and all the light they receive is entirely by reflection. Of this the portion coming from surfaces on the earth, etc., is a very considerable part. Light-colored surfaces are the most valuable reflectors, as they least disturb the composition of sunlight, and, at the same time, reflect the largest number of rays. It becomes, therefore, a matter of no little importance to see that the surroundings of school buildings be as free as possible from colored reflecting surfaces. Each substance has its effect upon the light which it reflects; some of the light is absorbed and that which is reflected carries with it the effect of color characteristic of the reflecting object. Again, surfaces may be illuminated by colored light depending upon nearby surfaces. Thus, conditions occur when there will be very noticeable flushes cast over the pages of the books of school children and which may be easily traced to the predominating influence of some one of the reflecting surfaces.

Concerning the function of light when it finally reaches a room, it may be said that that which passes directly from the window to the eye is of no benefit, except as it enables one to see the outside view. After the light passes into the schoolroom it is reflected back and forth between walls, floor, furniture, and occupants. The light which these various surfaces reflect gives impressions of form and color by which we appreciate objects. To preserve the light as pure as it entered, it will be readily seen that colored surfaces in a schoolroom should be avoided. A neutral gray, or such a shade of gray as may be necessary to modify the light in a room, should be used on the walls, curtains, and other reflecting surfaces. This, containing all the elements of white light, does not disturb the composition of light, and yet enables a variation of the amount of light by varying the degree of the color of the window-shade.

Quantity.—The darkest place occupied by any pupil should have at least sufficient light so that he may, without special effort, on account of insufficiency of light, read diamond type at a distance of at least twelve inches from the eye. By diamond

type I mean the smallest type used by printers. The size of this type approximately subtends an angle of five degrees at a distance of twelve inches from the eye, and represents about the limit of distinct vision. This test is sufficiently accurate for practical purposes. The diffused white sunlight from the northern sky, in general terms, is a close approximation to the desired amount. It is more usual to err on the side of insufficiency of light than on the side of excess. Therefore, it is safe to allow as much desirable light as possible to enter the schoolroom. To facilitate this the school building should have full and free exposure to the sun in order that the most perfect source of light may be fully utilized, either directly or indirectly. Such buildings should, if possible, stand upon elevated ground of sufficient area to prevent any adjoining building or trees from casting interfering shadows. The windows should be large and should be equal to about one-fifth the area of the floor. As little space as possible should be occupied by divisions in the windows. The windows should reach to the ceiling, and no obstructing ornamental projections, either outside or inside, should exist. The best effect is obtained with square-topped windows, the Gothic style being objectionable. The regulation of the amount of light, especially in those rooms of a school which are exposed to the direct rays of the sun, is of great importance. Blinds and curtains are used for this purpose. The essential qualities which these light-regulators should possess are as follows: (1) They should intercept the direct rays of the sun. (2) They should not dazzle. (3) They should transmit a maximum amount of white light. It is, indeed, difficult to find material which perfectly meets all these indications, but this can be approximated by such material as will not interfere with the quality, nor yet too much with the quantity of light.

This we find in combining the extremes, black, or the absence of all light, and white, giving such a shade of gray as may be desired to meet the indications. Blackboards, although not disturbing the quality, absorb a considerable portion of light, and, if the general amount is not plentiful in a given room, these should not cover too much surface; such rooms, as well, should have the walls colored white or nearly so. The ceilings of all rooms should be white, as by this is gained a valuable diffuser and reflector of light. Glass dulled on one side by sandblowing, and gray cathedral glass, make desirable substances for shading, but being too costly, are hardly practicable. Colored materials of whatever shade, except gray, should never be employed. Shades should roll at the bottom of the window; this will allow the more advantageous light to enter, be-

sides making it easier to lower the upper window for other purposes.

No artificial light can ever equal diffused sunlight, and, therefore, it is very desirable that children should be required to do their studying during the day if possible. However, when required, artificial light should be made to correspond as nearly as possible to natural light. It should be ample in quantity, good in quality, and come from a suitable direction. It should, furthermore, be steady, otherwise it will be dazzling and fatiguing. Experiments have been carried on by means of concave mirrors throwing the light to the white ceiling, thus diffusing it equally through the whole room, while the source of light remained hidden. The results are said to have been perfect. The electric light possesses an additional advantage over other artificial light, in that it does not vitiate the air—a very important consideration when large classes are confined to one room during a long period of time.

Direction.—The most favorable direction in which light can enter a schoolroom is probably from above. The photographer well knows the excellent service of diffused skylight. Unfortunately, however, school buildings are more than one story high, making this impracticable, excepting for the upper floor. All light that is not reflected directly from the work can only be a source of annoyance. If it is direct light which strikes the eye, the retina becomes unduly irritated, and cannot properly perform its function. Reflected light, as well, irritates the retina excessively, and often causes a confusion of the letters on the printed page with the images of other objects from which it may be reflected. For this reason blackboards should not be placed between windows, as the direct light from the windows will be a source of the greatest danger to the eyes of the pupil using them. The surface of the blackboards must not be glossy, but rather a dull black to prevent strong reflections. Light coming from below the level of the work or the head of the child is often worse than useless.

It will be readily seen that light should enter from such a direction that it strikes the work from above and from the left side. Light from the right side is, as a rule, objectionable, because it casts shadows, and for the same reason light from behind is not desirable, shadows of head and shoulders being cast over the work, either reading or writing. To increase the general lighting effect, partially diffused light from behind, but from as high a level as possible, may be permissible. If the rooms are properly arranged, sufficient light from the left side may be admitted without resorting to other sources. It will be noted that the light as it comes from the left

strikes the page, and most of it is reflected from the page at the same angle that it originally touched it. This light does not pass on as so much useless light, but as it passes from surface to surface, lighting the room from millions of reflections and re-reflections until finally becoming thoroughly diffused throughout the room, each nook and crevice is equally well illuminated with the general light in the room. This light being so strongly diffused does not cast shadows, is sufficient in quantity, and, if the reflecting surfaces are free from color, non-irritating in quality. It is the ideal light, and it has been amply proven that many, if not all the aggravating eye-strains and their varied consequences, so prevalent in our schools, could be avoided by close attention to this subject.

Bearing directly upon the well-being and health of the child's eyes as well as of his body is the position assumed during study. The seating of school children, therefore, becomes a subject of almost as great importance as the provision of proper light. A bad posture is not only injurious to the health of the eye, but is a fruitful source of curvature of the spine. Eulenberg says that ninety per cent. of curvatures of the spine, not induced by local disease, are developed during school life, and are directly traceable to improper seating. The improvement in American school-desks, as all know, has been great during the last few years, yet in many particulars we are far from perfection in this respect. As a rule, insufficient attention is being given to the size of the desks relative to the size of the children, and in many schools may be found desks all of the same size. As has already been pointed out under the subject of light, the great object in view is the prevention of undue approximation of the pupil to the work, and to avoid stooping. Desks should, therefore, correspond relatively in size to the size of the pupil. A back rest is necessary, but in nearly all desks this is too high, and interferes with the free movements of the body, besides encouraging a sliding down of the body. A good and substantial support to the pelvis and lower part of the back is sufficient and decidedly the least fatiguing. Furthermore, a child should rest the feet on a foot-board or the floor to sit easily. Non-support of the feet while sitting produces great fatigue and restlessness in children. The height of the seat, the height of the desk, and its slope are all very important. The slope for reading should be about 40° , and for writing 20° . The edge of the desk should at least come up to or slightly overlap the edge of the seat. This is an important consideration, and assists much in preventing the habit of stooping. It must, however, be borne in mind that, however important and necessary a proper school desk may be, it is equally essential

that the habit of correct sitting be acquired, and the teacher should dwell on this point at the beginning of the school year. Cramped and awkward positions are not likely to be assumed by an occupant of a properly fitting desk, except in writing and drawing, yet the habit of bad positions of sitting for all work may be acquired by the pupils unless properly instructed. Pupils should never approach their work closer than twelve inches.

It remains an undisputed fact among oculists that the constant stooping forward of the head and the close approximation to the page, is the most effective factor in the causation of myopia, save possibly constitutional predisposition. Eyes under these conditions are working in a state of tension, as it were, which, if long continued, produces a deep intra-ocular pressure, softening and stretching of the coats of the eyeball, and results, in milder forms, in a slight elongation of the eyeball characteristic of myopia. It has been noted with a great deal of satisfaction that whenever radical improvements in the lighting and seating of schools have been carried into effect, the reduction in the prevalence of myopia has been so great that its ultimate absolute prevention would seem a probability.

It must be observed, however, that not only must pupils be properly protected while in school, but the parents as well must cooperate, and the close application of the scholars at home under unfavorable conditions must be discouraged. After the child has attained its full growth, its tissues become more resisting, and injury to the eyes in the manner above stated, becomes less frequent.

CLINICAL MEMORANDA.

EXCISION OF THE RIGHT CLAVICLE FOR OSTEOSARCOMA.

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W. S., American, aged twenty-eight years, was admitted to the marine ward of the German Hospital, Philadelphia, October 15, 1895. His family history was negative, and he denied all venereal diseases and rheumatism. During March, seven months before admission, he began to complain of pain situated in the right clavicle. Shortly afterward enlargement of the bone became apparent. The pain was of a dull aching character, often radiating to the chest and mastoid process on the right side, and was aggravated by use of the arm. On examination, the inner two-thirds of the clavicle was found to consist of a hard, spindle-shaped tumor, extending to within $2\frac{1}{4}$ cm. of the joint. The right external jugular vein was distended.

October 22d, under ether anesthesia, the entire right clavicle, with the tumor, was removed by an incision extending along the bone from one end to the other, disjoining the acromial end first, dissecting the tumor loose from the surrounding parts, and last, disarticulating at the sternoclavicular articulation. The tumor was broken through while using the bone as a lever in separating its sternal attachments. To control the hemorrhage, it was necessary to apply over twenty ligatures. To prevent dropping of the shoulder, the detached portions of the trapezius and sternocleidomastoid muscles above were carefully sutured to corresponding portions of the deltoid and pectoralis major muscles below. The wound was closed with catgut sutures, leaving an opening in the middle for a gauze drain, and the dressing was applied, with the arm in the Velpeau position.

Subsequent to the operation, the highest temperature was 102.2° F., which continued for one day only.

FIG. I.



Showing site of operation and resulting deformity after excision of the clavicle.

Fourteen days after the operation the patient was out of bed. The wound healed by primary union, except at two points, one in the middle and one at the outer end, which healed by granulation. Forty-one days after the operation the patient was discharged. There was no deformity and no interference with the function of the arm. The tumor measured 11.25 c. cm. in circumference, and, on microscopic examination, was pronounced a mixed-cell sarcoma. The accompanying illustration shows the condition of the parts one year subsequent to the operation, and it will be seen that there is absolutely no deformity except the absence of the clavicular prominence on the right side. During the interval he had been performing his accustomed work as fireman on a steamboat, and stated that he felt no inconvenience from the loss of the clavicle, his arm being free from pain and as strong as ever. With his clothes on there was no evidence of dropping of the shoulder, and after stripping it was barely perceptible—not more than one centimeter—which is no more than is often observed in the normal individual.

Excision of the entire clavicle seems to be a rare operation, though partial excision is comparatively common. Professor Ashhurst up to 1893, had been able to collect but 36 cases of the complete operation at one sitting, following which there were 7 deaths, a mortality of nearly 20 per cent. It seems that Dr. Charles McCreary did the first complete excision in 1813, removing the right clavicle from a boy of fourteen, with scrofulous caries; that of Remmer in 1732, given by Gross as the first operation, having been, according to Ashhurst, a partial excision. The same author gives the mortality from partial excision, or excision *a deux temps*, in 76 cases as a little over 14 per cent. The celebrated operation of Dr. Mott,¹ performed during 1828, for sarcoma of the left clavicle, which required nearly four hours for its performance, and in which forty ligatures were employed, was a case of partial excision, though from the size of the tumor and the part of the clavicle removed—the inner end—was really a more formidable operation than the majority of cases of complete excision. Dr. Mott referred to it as his "Waterloo operation," and said that it was without a precedent, and far surpassed in tediousness, difficulty, and danger anything he had ever witnessed or performed.

A CASE OF SEVERE TOXEMIA; RECOVERY AFTER TREATMENT WITH COLD BATHS.

BY KNUT HOEGH, M.D.,
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THE patient, Mrs. G., thirty-two years of age, entered St. Barnabas' Hospital on September 2, 1897. A diagnosis of multiocular cyst of the left ovary having been made, the usual preparatory treatment for operation, consisting of bathing, scrubbing, shaving, evacuation of the bowels, and restricted diet, was carried out according to routine practice. On the morning of the operation breakfast was not allowed. An enema was given, and at eight o'clock a hypodermic injection of $\frac{1}{6}$ -grain of sulphate of morphia was administered. At nine o'clock the patient was etherized and oophorectomy performed. The hands of the operator and assistants had previously been thoroughly scrubbed, the operating-gowns, caps, and dressing material sterilized in Schimmelbusch's steam sterilizer, the instruments boiled fifteen minutes in a ten-per-cent. solution of sal soda, and the silk suture material, an hour in a five-per-cent. solution of carbolic acid. Böckmann's catgut was also used.

The sterilization was accomplished under the personal supervision of the operator. The operation was as easy as an oophorectomy can be, and no mishap occurred, except that a knuckle of bowel, about four inches long, was twice forced out of the wound by the vomiting and retching of the patient, and was immediately replaced by the fingers covered with gauze wrung out of sterilized hot water. In puncturing the cyst, a very small quantity of its contents, of an apparently bland nature, escaped along the trocar. There was no bleeding and the emptying of the cyst largely occurred outside of the abdominal cavity. Nothing but the operator's hands was introduced into the cavity; sponging or flushing was

not employed, and the peritoneum was not interfered with in any way. Including the insertion of sutures in separate layers and the application of the dressing, the operation occupied exactly thirty minutes, and at its completion a most hopeful outlook was presented.

Some hours after the operation five ounces of urine was withdrawn by catheter, and for the first few days the secretion of urine was normal. On the evening of the first day the temperature rose to 100.4° F. and the pulse to 84; the patient complained of abdominal pain; no flatus was passed; nothing but hot water was given by mouth and drugs were not administered. On the following day the morning temperature was 100.6° F., the evening, 100.8° F., and the pulse varied from 90 to 98. The patient complained of severe abdominal pain and slept but little. The urine was withdrawn by catheter, and while scanty was as much as could be expected considering the small quantity of hot water taken. Food was not given during the thirty hours following the operation. At the end of this time a small quantity of broth and a little dry toast was allowed. Nothing more was given that day, as nausea was provoked. The patient passed a restless night, having short snatches of sleep interrupted by pain in the back. Forty-six hours after the operation she vomited a dark-green fluid. The temperature remained very much the same as on the previous day—100° F. to 100.8° F., and the pulse, 88 to 92. During the day she repeatedly vomited a little dark-green fluid. She rested but little during the night, and the next morning vomited a somewhat larger quantity of similar appearance.

Sixty-six hours after the operation the temperature was 99.9° F., the pulse had risen a little, and the patient had a somewhat collapsed appearance. She had urinated spontaneously, but neither fecal matter nor flatus had passed. The wound looked healthy, the abdomen was slightly distended, but no ascitic fluid could be discovered. Hourly doses of $\frac{1}{4}$ -grain of calomel were administered, but the vomiting continued and no signs of intestinal peristalsis appeared. On the afternoon of the fourth day, eighty hours after the operation, the temperature began to rise; at 4 P.M. it was 102.6° F., pulse, 112; at 8.45 it was 103.2° F. and the pulse, 118; the vomiting continued. The administration of two enemas of salines and turpentine resulted in a fairly large movement of the bowels. The vomiting, however, continued during the night and the next morning; it must have been feculent, as it was described as offensive, although still green. The patient appeared slightly delirious. The matter next vomited was brown in color. The calomel was continued and small doses of strained barley-water were given. The following morning, at the end of the fourth day, the stomach was emptied by means of a flexible tube, a large quantity of distinctly fecal matter being evacuated. The calomel was then stopped and citrate of magnesia given. The patient was very feeble and decidedly delirious, but answered questions rationally.

During the forenoon of the fifth day the temperature remained 102.6° F., while the pulse increased in frequency and lost in volume and strength. An enema at noon produced a loose dark-brown evacuation. As the vomiting con-

¹ American Journal of the Medical Sciences, January, 1883.

tinued it was deemed advisable to use the stomach tube again, and about a quart of yellowish-brown fluid of fecal odor was removed. She was more delirious and restless than before, the pupils were dilated, the lips dusky, and a clammy perspiration covered the upper part of the body; temperature, 103.6° F., pulse, 148. It seemed as if the end were approaching, an event the more deplorable as the operation had appeared one of unusual simplicity and freedom from complications. As a last resort, she was carefully lifted from her bed and placed in a portable bath-tub filled with water at a temperature of 90° F. A towel rung out of ice water was placed upon her head, and the temperature of the bath reduced to 70° F. by adding ice to the water. She was kept in the bath ten minutes, during which time the body and limbs were briskly rubbed. She enjoyed the bath very much, spoke intelligently on being taken out, and went to sleep immediately after. An hour and a half later the temperature was 100.3° F., while the pulse still remained 148. A hypodermic injection of $\frac{1}{2}$ of a grain of strychnia was administered.

A little less than three hours after the first, a second bath was given, the temperature of which was lowered to 75° F. After this bath the patient's temperature was 102° F., pulse, 134, and a slight amount of flatus was passed, which was observed both by the patient, who had become more rational, and by the nurse. After a short time she became restless and vomited again, whereupon the stomach tube was used, and another hypodermic of strychnia given. At midnight, another tub bath reduced the temperature to 101.8° F., after which the patient became more quiet, and the pulse, which had remained 138, became perceptibly stronger. As she had not passed any urine since seven o'clock the previous morning, the catheter was used, and an ounce and a half withdrawn.

At two o'clock on the morning of the fifth day, that is before the one hundred and twentieth hour was completed, a fourth tub bath was given which calmed the restlessness and brought down the temperature to 100.8° F. and the pulse to 128. At four o'clock another hypodermic of strychnia was given, and at five, she was given a fifth bath which had the usual quieting effect. The temperature was then 100° F. in the rectum, and the pulse 124. The stomach was again emptied by means of the tube. At six o'clock hot water and whiskey, three ounces of each, were given per rectum, whereupon she went into a somewhat restless sleep. During the forenoon of this, the fifth day, two more tub baths were given and the stomach again emptied. The fluid removed was now green and did not smell so badly. In the afternoon, another tub bath was given, although the temperature had not risen above 100.6° F., but the patient wanted it, and, as it seemed to have a good effect upon the pulse which had dropped to 120 and finally to 110, it was deemed advisable. She was then given some barley-water which was retained an hour or more. At eleven o'clock at night the stomach was again washed out, and for the first time the contents were not feculent; there had been a slight natural movement a short time previously. The catheter had been used several times during the day, and altogether about seven ounces of urine obtained.

From the morning of the sixth day there was a steady improvement. The pulse went down to 104, occasionally rising to 110, the temperature ranged between 98° F. and 99.6° F., and there was a corresponding improvement in the general condition which continued until recovery was complete. It would be tedious to dwell upon the successive steps of her convalescence; it is only necessary to mention that she received in all ten tub baths and that the stomach tube was not used after the end of the seventh day. Her recovery was slow owing to extreme weakness, and was complicated by the appearance of a number of carbuncles on the back, which were satisfactorily treated by parenchymatous injections of a six-percent. solution of carbolic acid and applications of permanent wet antiseptic dressings. October 10th she returned to her home perfectly well.

In trying to account for the condition which came so near being fatal (and at one time was hourly expected to be so) it seems reasonable to assume that it was due to an absorption of toxins. The case did not impress the physicians as one of septic peritonitis, for there was no fluid or other effusion or exudation discoverable in the abdominal cavity, nor was there marked tympanites, at least not enough to correspond to the gravity of the constitutional symptoms, nor was there pronounced abdominal tenderness. At the end of the sixth day, when the crisis was over, the abdomen was absolutely flat and entirely free from pain upon pressure. It seems to me that the best explanation of the condition is the assumption of absorption through the edematous mucous membrane of toxic products from the paralyzed intestinal tract.

Why was the intestinal tract paralyzed? Could it have been the result of the administration of morphia before the operation? Was it due to the ether narcosis or to the compression of the knuckle of bowel by the rather violent vomiting and retching during the operation? Is it possible that the escape of, at the very utmost, two teaspoonsfuls of the apparently bland cyst contents could have produced it? And if so, should we not rather have expected peritonitis, and not this paretic condition of the intestinal tract?

The patient was of large frame, looked strong and robust, and had always been healthy; but her mother and a brother are said to have died after surgical operations. Does this point to the possibility of a congenital lack of resistance and power of reaction? Is such a paralysis of the intestinal tract to be classed with the anuria which sometimes follows abdominal operations, to be looked upon as an effect or evidence of shock?

It seems to me, and it appeared so to other physicians who saw the patient, that she would not have survived but for the cold baths. It is certain that they were very grateful to her at the time, although after her recovery she could not remember the first ones. That they were beneficial was evidenced by the lowering of the temperature, the strengthening of the heart's action, and the mental clearness which followed their administration. I was led to use them in this case because of the good effect which usually accompanies their employment in typhoid fever when the toxin poisoning is often the main cause of a fatal issue.

AN ADDRESS.

SANITARY SCIENCE, THE MEDICAL PROFESSION, AND THE PUBLIC.¹

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IN an address on public medicine delivered before the British Medical Association some years ago, Sir Charles Cameron referred to a writer in the *Scotsman* who objected to the appointment of medical men engaged in practice as officers of health, on the ground that "no sane body of men can bring themselves to believe that medical practitioners, whose livelihood depends upon sickness, are likely to exert themselves in exterminating it." Dr. Holmes once humorously said, "Physicians desire for their patients great longevity with frequent illness." To such an audience as this arguments or proofs are not necessary to refute these suggestions.

The history of sanitary science is indissolubly related to the history of medicine, and its achievements may almost be written in the recital of the work, investigations, and discoveries of medical men. It may perhaps be justly said, that no class or profession has contributed as much as the medical profession to the advance of civilization, to the prosperity of nations, and to the preservation and prolongation of human life, all of which are closely related to the vast contributions to the progress of civilization which have been made by sanitary science. Sanitary science aims to prevent disease. In former times at least four-fifths of all deaths were due to preventable causes, and even now, when the death-rate has been reduced to a quarter of what it once was, still one-third of the deaths occurring in our large cities are due to distinctly preventable diseases.

During a discussion in the British Parliament of a bill for the protection of the public health, one of the greatest English ministers, Disraeli, pronounced these memorable words, "The public health is the foundation on which repose the happiness of the people and the power of a country. The care of the public health is the first duty of a statesman." England has long and justly been regarded as the birth-place and home of sanitary science. English methods in sanitation have been the models for the world. No other country has had in modern times so high a standard of public health and such low death-rates. These conditions have, without doubt, largely contributed in placing the British nation foremost in civilization, and have assisted much in laying the foundation of, and in building up, the British empire, in which is included to-day nearly one-quarter of the world's population. Such results are, in fact, the logical and far-reaching consequences of broad statesmanship in sanitary matters.

¹ The anniversary discourse delivered before the New York Academy of Medicine, October 21, 1897.

So complex are the relations, that it is impossible, even after the most careful consideration, to gain an adequate conception of the vast influence which the health of a nation has upon its material prosperity and its standard of morality. We realize more fully how close is the relation of the public health to the material prosperity of a community, when we recall the deadening influence on business and commerce produced in 1892 by the appearance in New York harbor of several ships, each with a few cases of Asiatic cholera on board, and the occurrence of a dozen cases in New York City itself. Almost a panic was created among the more fearful of the inhabitants. All the Southern, Central, South American and Mediterranean ports were quarantined against New York, and but for the short duration of the outbreak a most serious interference with commerce would have resulted.

The appearance at that time of cholera in Europe and in New York was the result of sanitary neglect. We realize how dearly this was paid for, when it is remembered what the epidemic of cholera in 1892 cost the city of Hamburg. Can one by any stretch of the imagination conceive of the terrible results which would follow the extension of such an epidemic to a number of the large cities of Europe and the United States, or over the whole continent of Europe, as occurred in the great epidemics of earlier times? Consider the results which only this year followed the introduction, at the end of the season too, of yellow fever into some of the Southern cities. The material loss has been enormous, although the actual number of deaths comparatively insignificant. The expenditure, on sanitary and quarantine improvements, of one-tenth of the loss involved in this insignificant epidemic would render another introduction of yellow fever well-nigh impossible. With the numerous close and rapid lines of communication which now exist between all parts of the civilized world, the rapidity of extension of one of the medieval epidemics would be frightful to contemplate, should sanitary conditions and lack of sanitary knowledge rendered such an epidemic possible. In temperate climates we have no longer reason to fear the occurrence of epidemics of any diseases more terrifying than scarlet fever, measles, typhoid fever, and diphtheria, and the occurrence of an epidemic of any one of these is to be chargeable to remediable sanitary defects.

The public health bears quite as close a relation to public morality as to general material prosperity. Sickness brings in its trail, especially among the poor, uncleanliness, poverty, misery, wretchedness, destitution, and death. The physical and the moral man are interdependent. That which degrades one, degrades the other; individual exceptions to the rule do not invalidate its force.

The most casual review of history shows in a striking manner the extraordinary improvement which has taken place in the public health in modern times. The plague and the other great epidemic diseases of the Middle Ages, which decimated and sometimes well-nigh exterminated the human race, are vanquished; smallpox, typhus fever, epidemic dysentery, and cholera have been restricted to the narrowest limits. The prevalence, in temperate climates and under favorable sanitary conditions, of yellow

and typhoid fever has been diminished to a small fraction of what it formerly was. Diphtheria and hydrophobia are now absolutely preventable, and even the less alarming, because more familiar, but hardly less fatal diseases, measles, scarlet fever, whooping-cough, and summer diarrhea—a formidable array of preventable afflictions—have been confined by the energies of the sanitary authorities within much narrower boundaries. The great plague of modern civilization, tuberculosis, shows a steady and continuous decline in its death-rate, and the most gratifying improvement in the percentage of recoveries from it, as the result of improved general and personal hygiene. Smallpox, in former times with all its terrors, before the discovery of vaccination, was scarcely more to be dreaded than tuberculosis is even now. Smallpox then caused a relatively smaller proportion of deaths than tuberculosis does to-day. We are all familiar with pulmonary tuberculosis. It is seen everywhere; it occurs among all classes of the population. It is insidious, and extends slowly; it is not dramatic in the manner of its appearance or course. As it is so familiar to everyone, we do not fear it. We neglect it; and many would deny proper sanitary supervision and refuse to provide special hospitals for the care of the poor suffering from it. Therefore, its ravages still continue, and it causes nearly one-seventh of all deaths, and nearly one-fourth of all deaths among the adult population, although, be it remembered, no disease is better understood or more preventable; none more amenable to simple and easily applied measures of cleanliness and disinfection. A consumptive may be absolutely free from danger to his immediate family and to his most intimate associates, provided only simple precautions be observed.

But at last we may hope that light is breaking upon sanitary authorities, the medical profession, and the people. Rational measures of prevention are taking the place of insane fear, or helpless, hopeless, ignorance and neglect, and before another generation has passed away the death-rate from tuberculosis in cities under the best sanitary control will, I believe, be less than one-third what it is in New York to-day. I do not wish this statement to be received as the opinion of an enthusiast; but as the deliberate conviction, reached after most careful and prolonged consideration and study, of one who has had considerable experience in sanitary matters and exceptional opportunities for the investigation of this dread disease.

The diminution in the number of deaths occurring from all causes in proportion to the population is shown in the most striking way when we compare the present with previous conditions. The healthfulness of a community or locality is to be judged by the statistics of the number of cases of sickness and death considered in relation to their causes. The condition of the public health should be studied, not simply with relation to the number of deaths or number of cases of sickness in proportion to the population, but also with relation to the nature and preventability of the diseases which cause the morbidity and mortality. The mortality is usually expressed by stating how many persons die each year to each thousand of the population. In the Seventeenth and Eighteenth Centuries the average annual death-rate per thousand living, throughout the civilized

world, probably varied from 50 to 80, that is, of every thousand persons in the population 50 to 80 died each year. The average duration of life of each person born was not more than fifteen to eighteen years. From 1628 to 1635, in London—these years being free from pestilence—the average death-rate was 50 per thousand, and the absolute annual mortality for twenty-four years, from 1620 to 1643, inclusive, was nearly 80 per thousand. With what incredulity would the prediction have been received two hundred years ago that the then average annual death-rate of 80 per thousand in England would be reduced at the present time to 17. The mortality during 1894 in London was only 17 and a fraction, or less than one-quarter of that of two hundred years ago. The mean expectation of life at birth one hundred years ago in London was only about nineteen years, the annual death-rate being 51 or 52 per thousand. At the end of the first half of this century it had already diminished more than one-third, to an estimated 30 or 35 per thousand, and as the century draws to an end it has diminished again to only 17 or 18, and the average duration of life has increased to more than 40 years, or more than doubled during the century. From 1770 to 1780 smallpox alone caused a higher annual death-rate in London than diphtheria, croup, consumption and all other tuberculous diseases, measles, smallpox, scarlet fever, and typhoid fever together caused in New York last year. Fever at the same time caused an even greater death-rate, and in the Sixteenth-Century plague, cholera and dysentery, diseases which are now practically extinct, annually destroyed nearly twice as many of each thousand of the population as now die from all causes added together. More than 40,000 people died in Paris during one epidemic of smallpox in the last century, and a third of the population of Iceland in another. Ten per cent. of the population of a city or country were often destroyed during one epidemic.

It is perhaps desirable to define more specifically what is meant by infectious, contagious, and communicable disease. Infectious diseases are those caused by some simple form of animal or plant life, which possesses, under favorable conditions, unlimited powers of reproduction. The contagious diseases include those infectious diseases which are transmitted by contact or proximity to the infected individual or infected material. For convenience we refer to another class of the infectious diseases as communicable, in distinction from the contagious, because the susceptibility is far less general and the means by which they are transmitted are well understood.

In the communicable diseases the observation of simple measures of prevention almost entirely robs them of danger to others. This is not true of the contagious class, which includes smallpox, scarlet fever, measles, chickenpox, whooping-cough, and typhus fever. The communicable diseases include diphtheria, typhoid fever, tuberculosis, cholera, and some others of less importance, in all of which it is possible to reduce to a minimum the danger of transmission by the observation of simple measures. In diphtheria the germs causing the disease are contained solely in the discharges from the nose and mouth; in typhoid fever and cholera they are contained

only in the discharges from the stomach or intestines; in pulmonary tuberculosis, or consumption, only in the expectorations. It at once becomes evident that very different measures of prevention are to be adopted in these different diseases. In the contagious class, it should be said, we are as yet unable to adopt any measures which will protect an exposed and susceptible individual.

The most serious array of preventable diseases with which we have at present to contend are those which are highly contagious, such as measles, scarlet fever, and whooping-cough, and a group of infectious diseases, partly communicable, such as diphtheria, typhoid fever, summer diarrhea, pneumonia, influenza, and some other affections of the respiratory tract. In all the diseases of this list there has been a constant decrease in frequency of occurrence, excepting diphtheria, pneumonia, and the epidemics of influenza. Diphtheria has been gradually increasing for a number of years in all of the larger cities until the discovery of the diphtheria antitoxin in 1894. With the extensive use of this remedy it commenced to diminish rapidly, and in Berlin and Paris the death-rate from this disease has been reduced to almost one-quarter of what it previously was. Much has also been accomplished in New York, a diminution of forty per cent. having taken place; but as yet the field is by no means exhausted. The constant increase of diphtheria in the large towns was a remarkable and inexplicable fact, until the observations first made on a large scale by the New York City Health Department showed how it was disseminated through the diphtheria bacilli present in the throat during convalescence and in health.

In the control of whooping-cough, measles, and scarlet fever, exceptional difficulties must be contended with, especially in the great tenement-house population of New York. These diseases possess many features in common. In no one of them is the cause known, and, therefore, the difficulties in their control are greatly increased. These difficulties arise in part from the great crowding in our tenement-house districts, and in part from the fact that they are regarded by the ignorant as only children's diseases, and consequently inevitable. They are, therefore, neglected, and, as a result, being excessively contagious, are prevalent and familiar, and unnecessarily destroy many hundred lives in this city every year—more than ten times as many as smallpox and cholera together; yet there is more dread of the latter two diseases than of all other zymotics combined.

I believe that much could be done to reduce the death-rate from the diseases under consideration if they were managed in an efficient and intelligent manner and with a genuine determination to restrict and prevent them. Probably a satisfactory result will only be attained by the education of the masses, so that they will be able to estimate the actual danger attending these diseases. This opinion as to the possibility of their prevention is justified, as has been shown by Dr. Hill, Medical Officer of Health to Birmingham, by the success which has attended the measures taken in that city with regard to scarlet fever. In Birmingham the annual average death-rate during three periods—1875 to 1878, 1878 to 1882, and 1883 to

1889—has been reduced from 425 per 100,000 to 235 and to 72 during the last period, the number of deaths being only about one-sixth as many as during the first. This reduction has been ascribed to the compulsory reporting of cases and to the hospital accommodations which have been provided for the care of patients with this disease. During 1875 only 20 cases of scarlet fever were admitted to the hospital. In 1889 this number increased to 3759. During the intervening period the decrease in the prevalence of the disease was coincident with the knowledge obtained of the occurrence of cases, and the extent to which the public availed themselves of the advantages of hospital care.

It is said by Dr. Hill that "the prejudice against hospital treatment, which was general at first, has mostly disappeared, and the public now appreciates the advantages to health and life of an institution which enables patients to be removed from unhealthy rooms and other unfavorable conditions to a properly equipped hospital, where better air, suitable food, superior medical treatment, careful nursing, and all those appliances are at hand which a hospital affords, but which are wanting in the homes of the poor." The mortality of the disease in the hospitals varies from five to six per cent. It is noted also that "the social and professional objections to the act controlling the notification of infectious diseases have been proved to have had no foundations whatever. The distrust and friction between the practitioner and the medical officer of health, which were predicted, have not appeared; the concealment of disease which was to have followed has not occurred; the sacred confidence between patient and doctor, which was to have been destroyed with most disastrous results, remains inviolate. And so every theoretic objection which timidity, selfishness, or ignorance could find or invent has been refuted by practical experience."

"One of the objections put forward in this matter, and which deserves special comment, was that notification would be useless in the absence of isolation-hospitals. Without seeking to refute this assertion, which, however, would not be difficult, it may be said that to make compulsory the notification to the sanitary authorities of cases of infectious disease which ought to be isolated constitutes one of the strongest inducements to provide hospitals for their care. These follow as a natural sequence. Every town should provide at least one bed in such a hospital to every thousand of its population.

"The past triumphs of preventive medicine have been achieved in relation to the majority of the scourges afflicting mankind through cleanliness. Malarial fever, smallpox, and hydrocephalus have yielded to different and special influences, but the plague and the medieval epidemics have been banished by cleanliness. Typhus and cholera, which formerly wrought such terrible havoc where filthy conditions prevailed, have disappeared through the influence of cleanliness. Typhoid fever is becoming less common through the improved cleanliness and better water-supply of our cities; and while filthy conditions do not seem to give rise to measles, whooping-cough, scarlet fever, and diphtheria, yet there can be no doubt that they

seriously aggravate their severity. Nevertheless, the old lesson of thousands of years ago is still unlearned. The sanitarian must still go forth and try to teach that without cleanliness health is impossible."

A Royal Commission, appointed to inquire into the sanitary condition of the British army in India in 1859, found that during a long period the annual average death-rate had remained 69 per thousand. The inquiry resulted in extensive improvements in the housing, clothing, food, and occupation of the soldiers. After these were carried into effect there was a steady decline in the death-rate, the rates for 1886, '87, and '88 vary between 14 and 15.2 per thousand, or less than one-fourth of that previously prevailing; in some years the rate has been even lower.

The impetus to modern sanitary progress may be said to have commenced in England with the passage of the Public Health Act of 1875. Since that time there has been a diminution of twenty per cent. in the death-rate for the whole of England and Wales, while in certain individual communities the fall has equaled thirty per cent., and in Maidstone the unusual figure of forty per cent. has been reached. In New York City, in more recent years, an equally great reduction in the death-rate has been obtained in a shorter period. The average annual death-rate for the ten years ending in 1893 was about 26 per thousand of the population, while the present year will show a death-rate of only 19 and a fraction—a reduction equaling about twenty-five per cent. since 1893. The improvement in New York is especially notable, because it has not been the result of, or associated with, any single great public work or improvement, such as the introduction of a purer water-supply or a better system of sewerage, but is the result of a gradual improvement in every respect in the general sanitary conditions—the improvement in the character of the housing of the poor, the condemnation of rear tenements, the prevention of over-crowding and the habitation of basements and cellars; the improvement in the character of the pavements, and in the cleaning of the streets; the improved character of the water-supply, through a better control of the watershed; a closer supervision of foods, attained by a rigid inspection of meat, fish, and fruit, and the precise control of the milk-supply; the inspection and supervision of offensive trades; the application of modern scientific discoveries in the supervision and control of infectious diseases, and the education of the people in all matters connected with general and personal hygiene.

While the splendid results which have been obtained may well serve for congratulation, it is not to be supposed for a moment that the limit of the improvement has been reached, or that the resources of preventive medicine have been exhausted. On the contrary, the reverse is true, and while we cannot rationally hope for as rapid a reduction of the death-rate in the future as has been the case in the past, because the limit placed by the natural duration of human life is being more nearly reached with each advance, yet it may be said that almost as much remains to be done as has been accomplished in the immediate past. Notwithstanding the increased strain which is associated with the complexity of modern civilized life,

there is no inherent reason why the death-rate, even in such a densely populated city as New York, should not be reduced to 14 or 15 per thousand, or even less, and the average duration of human life increased to fifty years or more.

In speaking of sanitary authorities in relation to the medical profession I desire to refer more especially to the Board of Health of New York City and its relation to those who practice medicine in this city. I would not be understood as speaking for the Health Department, but wish to give only my personal impressions as one of its officials.

The attitude of the Board of Health of New York City toward the medical profession has been in many respects more advanced than that of any other sanitary body in the world. The broad position has been taken that it is the function of the Health Department to furnish to physicians all such specific and general information and assistance in relation to the infectious diseases as can be afforded by thoroughly equipped bacteriologic laboratories, in which the work is fully abreast of the most recent observations in scientific medicine. The sanitary authorities of New York City were the first in the world to assume this position, and while their example has been widely followed in the great cities of this country and Greater Britain, yet nowhere else has this position been frankly taken and consistently followed to the extent that it has been here. It has been the attempt of the Health Board to introduce new measures or to adapt existing measures to the new requirements of every additional observation with regard to any of the infectious diseases which had a practical bearing on prophylaxis or therapeutics. Two considerations, as I interpret the action of the Department, have mainly influenced the Board in the adoption of this position: (1) The desire to extend as rapidly as possible the knowledge of the most recent discoveries in regard to the infectious diseases and the means for their restriction, prevention, and cure. (2) The desire to afford the general practitioner of medicine, without charge, such expert assistance and special information as may be useful to him in clinical work, which could not be otherwise obtained, excepting at greatly increased trouble and considerable expense.

It has been the hope of the Board of Health that such a course would materially aid in establishing more cordial and mutually confidential relations between the members of the medical profession of this city and the Health Department, and thus facilitate the work of the Department; and it was thought that the information thus offered would be, in a sense, received in lieu of the money compensation given to private physicians in some countries for reports of births, deaths, and cases of contagious disease. In this country no such compensation is offered; the position assumed being that it is the duty of the physician to make such reports, and that no payment should be received for the discharge of such a duty. Whether this attitude is a proper one or not does not concern us now. My own belief is that the welfare of the community and the rights of the medical profession would be better conserved by the payment of money for reports of the

occurrence of births, deaths, marriages, and contagious diseases.

In considering the relations of the sanitary authorities to the medical profession the fact must be kept in mind that the points of view of the Health Department and of the profession are widely separated. The interests of the community, as guarded by the sanitary authorities, and of the individual practitioner of medicine, are apparently divergent, but the real interests of the practitioner, who is at the same time a citizen, are quite in line with those of the community, and it cannot be for one moment assumed that the conscientious, intelligent, and broad-minded physician will view the situation from any point other than that of the community as a whole. Whether the practicing physician then arrives at the same conclusion as the Health Board as to the proper course to be pursued by the sanitary authorities will be a question of opinion; there will be harmony of purpose, and, at most, only a difference of opinion as to the methods to be adopted to secure a common object. Considering the apparently diverging interests of the physician and the community, it is not strange that the action of the Health Board and the position adopted by it in relation to some of the infectious diseases should be the subject of criticism by members of the profession.

But physicians apparently often think that radical measures are adopted by the Board of Health after too little consideration and without a full knowledge of all the facts bearing upon the situation—a much fuller knowledge than, from the nature of the conditions, the members of the medical profession can possibly possess. Consequently, the Health Department is severely and often very unjustly criticised for a course which is the only logical one, and one wholly justified when all of the facts are taken into consideration. The medical profession sometimes forgets that the Health Board legislates and acts for the whole city, not for special sections or for individuals; that many measures which are not demanded or necessary in the best portions of the city are required for the well-being of the inhabitants of the tenement-house districts, and also that special legislation is generally objectionable, must be very carefully restricted, and only resorted to when it has an absolutely special application.

Great discretion has always been exercised in enforcing sanitary measures and the provisions of the Sanitary Code in New York City, and much greater liberty is allowed in private houses than in tenement-houses, because of the lessened danger to the public as a whole. It has never been the policy of the Health Department to interfere in any way in the management of cases of contagious disease occurring in private houses as long as there is no exposure of persons outside of the patient's family. The Department requires that such precautions shall be taken as will protect persons outside from possible infection, but in the family the Department does not interfere. This has always been the policy and the course pursued; but it does not seem to have been fully understood by many of the members of the medical profession.

Physicians occasionally criticise the Health Department for indiscretion or want of judgment on the part of its

employees. These criticisms are often justifiable, but unfortunately, they are not, as a rule, made directly to the Health Board, so that the facts may be determined and any wrongs or defects remedied; often they are facts made known through the medical journals or through discussions in the medical societies, and thus, only long after the occurrence the Board becomes aware, indirectly, of the cause of the complaint. There are over two hundred physicians in the employ of the Department, all appointed after passing a civil-service examination. Their instructions are always definite, specific, and detailed as regards duties, and all employees of the department are strictly held to account for their actions. Judgment and discretion cannot be furnished to its employees by the Health Board, or by any other body. Every possible precaution is taken to prevent any just cause for complaint, and each and every one is most carefully investigated, and, so far as is possible, the cause removed and the errors corrected. The Board, however, cannot remedy defects which are not brought to its knowledge. Investigation has also shown in many cases in which complaints have been directly made to the Board that the physicians have been misled by the statements of the patient or family, or by lack of knowledge of all of the facts in the case. The greatest cause for misunderstanding and complaint arises from the fact that only with rare exceptions can physicians be induced to read the circulars of information issued by the Department in regard to its work and the methods pursued. Most of the unsatisfactory results in the work of the bacteriologic laboratories are due to the failure on the part of physicians to follow specifically the directions given. It is impossible where examinations are made from several hundred cases each day, as frequently occurs, to attain anything like a reliable service unless the specific and definite directions given are accurately followed. Still, I think it may be fairly said, that as a whole the work of the Health Department of New York City during recent years has deserved and received the commendation of the large majority of the medical profession of this city.

The duties and responsibilities of the sanitary authorities with relation to the general public are numerous and comprehensive. To a very great extent the general welfare of the community is in their hands. Everything which is detrimental to health or dangerous to life, most broadly interpreted, is properly regarded as coming within their province, and so wide should be the construction of the law that everything which improperly or unnecessarily interferes with the comfort or enjoyment of life, as well as those things which are detrimental to health or dangerous to life, should become the subject of consideration and action. Sanitary authorities must protect the community from the individual, "the greatest good to the greatest number" furnishing the first rule of action. They must ensure the safety of the community as a whole, and, so far as possible, of each person in it, by protection of the community from its component parts, and then again from each other. The interests of the individual and of the community are often divergent, or apparently divergent; for example, in factories and noxious trades, the observa-

tion of such sanitary precautions as are necessary for the protection of the health of employees often involves serious expenditures which fall upon the owners. Again, the welfare of the individual frequently requires such changes in the physical condition of property—tenement-houses for example—as the tenants would not themselves demand. In cases of contagious disease it may sometimes be to the interest of the individual to be left in his own home, while the good of the community urgently requires his removal to an isolation hospital. It becomes at once evident, in all such instances and many similar ones, that it is the plain duty of the sanitary authorities to exercise judiciously, but firmly, the autocratic powers given to them by law. They should not interfere in regulating individual action, at least only to a very limited degree, unless such action involves danger or detriment to the community.

A glance at the functions performed by sanitary authorities shows how broad is their scope: Primarily, sanitary science aims to insure to a community and to each individual an abundant and pure supply of air, light, water, and wholesome food. In the great aggregations of population found in our large cities the preservation of the purity of the air and insurance of an abundance of light and good ventilation involves most comprehensive measures relating to the character of the habitations—their cleanliness and the cleanliness of their surroundings, including the streets; the provision of efficient plumbing; good sewerage; sufficient air-space to the individual, that is, the prevention of overcrowding; protection against noxious vapors or odors arising from offensive trades, slaughter-houses, gas-houses, decomposing animal and vegetable matter, and the purity of the atmosphere, so far as suspended solid particles are concerned.

These functions of the sanitary authorities are performed through official inspections made by inspectors of plumbing, ventilation, overcrowding, nuisances, noxious trades, and by the general sanitary inspectors. An abundant and pure water-supply is one of the first and most essential factors in insuring healthfulness in a large community. Without this, cleanliness, in a broad sense, is impossible; and, of course, cleanliness is the first consideration in all sanitary work. Further, the purity of the water-supply is a most important factor in the prevention of many forms of water-borne disease. New York City is particularly fortunate in this respect; no great city of the world has a more abundant or purer water-supply. In this connection we must not confuse what is unpalatable to the taste or appearance with actual purity. At certain seasons of the year the Croton water is unattractive in appearance and has a disagreeable odor and taste, due to suspended vegetable matter. There is no evidence, however, to show that this is really detrimental to health.

It is also incumbent upon the sanitary authorities to prevent adulteration and to guarantee the wholesome quality of food. This is attained through specially trained inspectors of meat, milk, fish, fruit, and general foods. The purity and quality of various drinks must be inquired into, and the relative food values of different articles of

diet determined. Not only must an abundant supply of light, pure air, and water be insured in the homes of the individuals of the community, but the same must be found where they are engaged in their daily occupation, in factories, mercantile establishments, etc.; all the sanitary conditions surrounding these must be supervised.

The general sanitary inspections include inspections relating to street excavations, wells, privies, stables, the conditions surrounding the removal of garbage and dead animals; conditions in public places and places of assembly; the manner and place of burial, etc.

A special feature of the work relates to the restriction and prevention of infectious diseases. Personal and general cleanliness is to be regarded as a most important and almost universally valuable safeguard against all forms of infection, yet the most ingeniously devised systems of plumbing, drainage, and street-cleaning cannot avail to protect the individual from direct contagion. The greatest value of the system of notification of the existence of contagious disease is due to the fact that it enables the authorities to adopt intelligent and scientific measures to prevent the direct transmission of contagion. Their energies are not then wasted in ill-conceived and inefficient measures. It should be clearly understood that the reporting of the occurrence of infectious diseases is most useful only when the direct causes of the diseases reported and the methods of their transmission are accurately known and amenable to control. The public, and even the medical profession, have not yet fully learned the lesson, though it seems almost axiomatic, that different diseases require to be controlled by different methods, and the more accurate and extensive our knowledge of the nature and causes of the different infectious diseases the more unlike become the intelligent measures devised for their prevention.

The condition of the general sanitary administration in this country now much resembles that existing in Great Britain twenty-five years ago, previous to the enactment of the Public Health Act of 1872. There is everywhere lacking the presence of intelligent, thoroughly trained sanitary officers, because there are no provisions in this country for the education of men in matters of public health. The knowledge required for the intelligent discharge of the duties of medical officers of health is broad, comprehensive, and entirely unlike that required for a medical adviser. There is, so far as I am aware, no place in this country where the complete training required can be obtained. Consequently, outside of the large cities the medical officers are generally physicians without special knowledge, experience, or ability in the performance of the work required. Unfortunately, too, the compensation is insufficient and the tenure of office insecure, frequently depending upon local political influences. It, therefore, becomes almost impossible that such officers should act in the prompt, firm, and fearless manner often required, and especially is this true when the interests of persons prominent in the community are jeopardized by their action. The community, in other words, must suffer because the interests of its prominent members are different from those of the people at

large. In regard to even the larger towns and cities all this may be said with almost equal force.

There are no men to be found anywhere in this country with a broad knowledge of public medicine. In the great cities there are officers in the service of the health departments who, from practical experience and long training, have acquired the special knowledge requisite for the efficient discharge of duties in a narrow sphere of work. But even in the large cities none are to be found whose knowledge covers the whole sphere of public medicine. The great sanitary need of the time is for the establishment of training-schools in public health (similar to those existing in Great Britain), the education of physicians in the special knowledge required, and the enactment in the various States of laws requiring that medical officers of health should have diplomas in public health, such diplomas representing the requisite sanitary knowledge; and those not possessing such credentials should not be eligible for public-health appointments. The compensation for sanitary work should be larger, the tenure of office more secure, and the appointments made by State or National authorities, rather than dependent upon local influences.

As the country grows older and more densely populated, the cities larger and more crowded, the demand for intelligence in the administration of sanitary affairs will become more urgent. In addition to the improvement in local conditions, there should be added a National supervision exercised through a properly constituted National Bureau or Department of Health. With the fulfilment of these two requirements in the future, we may hope finally to attain more nearly ideal sanitary conditions throughout the whole land.

MEDICAL PROGRESS.

A Case of Tetanus.—J. RUDIS-JICINSKY (*N. Y. Med. Jour.*, Nov. 13, 1897) describes a case of tetanus following a bite in the thigh produced by a boar. Five hours later there had already developed stiffness of the muscles of the neck and jaws and tonic spasms of the diaphragm. The temperature in the axilla was 99° F. The wound was thoroughly curetted and irrigated with a strong solution of potassium permanganate, followed by hydrozone, and was then dressed with iodoform gauze and equal parts of iodoform and calomel. Forty grains of bromid of potassium and large doses of morphin were given every two hours, while chloroform was administered during the spasms. Twenty-four hours later treatment with antitoxin was commenced, about 40 c.c. being given every day for five days. Up to the time of the first injection the spasms had recurred with unpleasant regularity. From that time on they became lighter, and the intervals between them longer. The patient recovered.

The Best Gauze for Drainage.—HALL (*Boston Med. and Surg. Jour.*, Nov. 18, 1897), who has been testing the capillary power of different gauzes, finds that wicking or cordine has a decided advantage over ordinary gauze wicking as it contains in a small compass a maximum

number of longitudinal threads. In ordinary gauze each transverse thread proves a little obstacle to the upward progress of fluids. "A study lamp," says the writer, "which burns a pint of oil during an evening may teach a lesson in drainage. In most lamp-wicks the threads all run as nearly longitudinally as is consistent with stability of the fabric. Steps have already been taken toward securing the manufacture of an absorbent tape on the principle of the selvage. Such a tape, it is hoped, will supplant the faulty gauze drain."

Omental Grafts.—JORDAN (*Lancet*, October 30, 1897) used omental grafts in sixteen cases of intestinal resection in dogs. In every case their application worked disadvantageously. In dogs killed a short time after operation the omental graft was found to be thickened and adherent to surrounding coils of intestines. Later, it was changed into a dense fibrous ring which either constricted the lumen of the bowel or, contracting longitudinally, produced a sharp angle in the intestine, or threw the mucous membrane into folds, or by extensive adhesions with other coils of intestines so matted them together as to make their separation difficult or even impossible. Such conditions, even if they are not followed by obstruction of the bowel, cause so much disability and pain, that the practice of covering intestinal sutures with omental grafts should never be resorted to.

A Case of Combined Intra- and Extra-uterine Pregnancy at Term.—ROYSTER (*Amer. Jour. Obstet.*, December, 1897) reports that a negress, aged thirty-four years, was delivered by a midwife of a healthy male child. Forty-eight hours afterward, inasmuch as the midwife felt in the abdomen another child which she was unable to deliver, she sent for a physician, who, by introducing his hand into the uterus, made out that a living fetus at term was outside of this organ. He advised operation, which was refused. The fetus lived more than a week, and then movements ceased. One week later, as the woman's temperature had begun to rise and death seemed imminent, she consented to operation. Celiotomy was performed, and a female child weighing four and one-half pounds was successfully removed. The placenta with its membranes was attached to the anterior abdominal wall, and it would not have been necessary to open the peritoneal cavity in order to remove the whole. This was done, however, accidentally. The patient recovered. The history in this case reveals the fact that during the third month of pregnancy, while squatting down to pass urine, the patient had had a sharp pain in the right side which caused her to call for help. She fell, half-fainting, and was carried into the house and put to bed, but recovered within a few hours. There was no external loss of blood.

A Curved Hypodermic Needle.—LEGRAND (*Bull. Gen. de Therapeut.*, Nov. 8, 1897) suggests that the use of a long curved hypodermic needle will enable the operator to more perfectly anesthetize with cocaine those surfaces of the body which are difficult of access, especially the anal region. Such a needle has been tried by several European surgeons with the greatest satisfaction.

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SATURDAY, JANUARY 8, 1898.

RECENT TYPHOID-FEVER EPIDEMICS.

THE serious outbreak of typhoid fever at Paterson, N. J., and in its neighborhood, caused as it was by a tainted milk-supply requires no comment on that account, but it brings into glaring light a most astonishing lack of proper dairy and milk inspection here at our very doors. First, the dairyman's three sons were ill with what had been carelessly diagnosed "remittent fever," but which in reality was typhoid, and were allowed to continue their work in the dairy for a month. Secondly, the dairy inspection has been so outrageously lax that a large dairy supplying Paterson, Arlington, Dover, Newark, Morristown, the Oranges, Jersey City, and New York, was allowed to draw its water for all purposes, washing the utensils, cans, etc., from a small stream, taking its water through a pipe only twelve feet below the outlet of the drain-pipe from the dairyman's privy. Thirdly, the criminal carelessness of the proprietor who used water which he must have known was in imminent danger of being infected at any moment. Fourthly, the entire absence of any law in New Jersey requiring physicians in the country districts to report cases of infectious and contagious disease. To point out

these salient points ought to be sufficient to bring speedy reform. Comment is unnecessary.

Even typhoid epidemics have their humorous side. A large number of the typhoid cases in Paterson were traced to ice cream which had been prepared from milk from the above-mentioned dairy, and which had been eaten at a "pure-food show" inaugurated by the good denizens of the town to show what they could do in that line. They did it.

The second epidemic to which we desire to call attention is that at Maidstone, England, in which up to date there have been nearly 2000 cases. As is usual in large epidemics, this was spread by water, the lake from which the water was drawn for the larger part of the town having been infected, through a camp of hop pickers. The percentage of cases is based upon the population of the entire town, but if the number of inhabitants of the central district, which was not supplied with the contaminated water, was known, it would show that in the parts of the town where the infected Farleigh water was drunk the percentage of cases was very much higher. The curious thing in connection with this epidemic is the significant immunity enjoyed by that part of the town which contained 17,000 persons, or nearly one-third of the entire population, there having been in this district up to date but thirty-five cases. To be sure, this particular section of the city was not supplied with the Farleigh water, but there was probably not a single inhabitant of the central district who had not relatives, friends, or business connections living in one or more of the districts which did use the Farleigh water, and they must have consumed a great deal of it at one time or another in going about their daily avocations, and yet there were only thirty-five cases in this district, as opposed to 1073 in the districts immediately surrounding. It does, therefore, seem as if the inhabitants of this locality were for some reason or other less susceptible, and in the course of his investigation the *Lancet's* commissioner made a special study of this point, and found that the epidemic was not only limited to those districts supplied with the Farleigh water, but established the curious fact that the greater number of cases occurred in the *higher parts* of those districts which were higher than the rest of the town, and this was particularly the case at the commencement of the epidemic. The second characteristic fact

noted was that the epidemic did not coincide with the distribution of the Farleigh water-supply only, but also with the higher altitudes.

It seems curious that while it is generally considered more healthy to live on high ground, the reverse seems to have been proven in the epidemic under consideration. This fact, however, has been noted before, as in Paris, where much typhoid fever has been noticed in such high districts as Belleville, Montmartre, and Les Batignolles, while the low-lying quarters near the Seine were comparatively free from the disease. This fact was explained by the Paris authorities on the ground that the sewer air traveled upward and that a greater volume of sewer air forced itself into the mains draining into the upper extremities of the sewer, and this would also seem to explain the fact that the Maidstone epidemic was almost exclusively confined to the higher parts of the city.

The *Lancet's* commissioner, however, finds that the manner in which the sewers of Maidstone are built and laid does not confirm this theory, and he calls attention to the fact that the great majority of sewers in Maidstone are pipe, that is to say, very small sewers, whereas, in Paris, the sewers are usually very large with proportionately less water, and hence, the downward flow does not prevent an upward current of air, whereas, when the sewer is small and the pipe nearly full of water, there is sufficient friction caused by the downward rush of the water to attract the air of the sewer-gases. It, therefore, would follow the flow of the water, and go down instead of up. While this is true, it seems that in Maidstone the sewer-pipes, though small, are poorly flushed, and the discharge of sewage is irregular, and though the air would probably travel downward in the morning when the sewers are full, it would scarcely be the case at night when the pipes are empty. And hence there would unquestionably be a steady flow of sewer-gas drawn by the warm air upward and into the houses, more especially at night, in houses in the higher portion of the town. It is at night that sewer air, as we know, produces the most deadly results, for there is naturally less free ventilation and the power of resistance of the sleeper is probably not so great as that of the person awake. Add to these considerations the fact that the domestic drainage of Maidstone is in anything but a good condition and that

there are many closets without any flushing apparatus, and there are produced the favorable circumstances which weakened the resistance to typhoid infection when introduced by the medium of the contaminated water-supply in those who lived in houses in the higher parts of the city.

It also appears from the work of the commissioner that the sewers of Maidstone are so laid that they are much more likely to act as ventilators for the main sewers which flow through the lower part of the city, than those which flow through the central or non-infected district. The conclusion to which he comes is that under the conditions, it was most essential that the investigations, whether concerning the epidemic at Maidstone or elsewhere, should not be limited to the water-supply, for while, naturally, it is first necessary to discover what is the primary cause of the epidemic, so that practical measures may be taken during the emergency to do away with the same, it would be folly to imagine that having done this much no further measures need be adopted, for a town, like a patient, is composed of individual parts which together form the collective whole. Some are strong and wholesome, others are weak and susceptible to disease, and, as the *Lancet* writer says, the duty of sanitary science is to discover and remove the cause of this condition.

The Farleigh water-supply of Maidstone is in the hands of a private company. The fact occurs to us that the terrible epidemic in Duluth, Minn., occurred at a time when the water-supply was in the hands of a private company, and the officers of the company denied that their water-supply was the cause of the infection and refused to move in the matter. In this case it was known that the intake-pipe was not at a very great distance from the emptying sewer-pipe in the lake, although it extended out a much greater distance. The officers insisted that it was sufficiently far away to be perfectly safe. As the epidemic increased, the citizens took the matter in hand and investigated it for themselves, and lo and behold, they found a break in the intake pipe close to the shore, and at very little distance from the emptying sewer-pipe. There was naturally a political upheaval about it, and the city of Duluth now has its water-supply in its own hands and under the direction of its Health Commissioners.

While there was apparently no such criminal care-

lessness on the part of the Farleigh water-supply company, at the same time the occurrence should lead us to ask whether the water-supply of all cities should not be operated by the city, under the direction of proper health-officers.

THE PHILADELPHIA MEDICAL JOURNAL.

THE first number of the *Philadelphia Medical Journal* is at hand. Its appearance is pleasing, and its contents varied and interesting. The one new feature which is quite distinctive in a medical weekly is the method of abstracting articles from other journals. Instead of selecting leading articles, certain journals are chosen and brief abstracts of their entire contents are presented, after the now familiar method of the *Medical Review of Reviews*.

In its Announcement the declaration is made that "the Company is to be its own publisher, so that by sins neither of omission nor of commission can commercial interests influence a line of the reading columns. By the advice of experts of national reputation the *Journal* will seek to draw the line against all nostrums in our advertisement columns, in order that from cover to cover the best scientific and ethical standards shall be safeguarded."

This is, indeed, most commendable, and it will be interesting not only to medical editors, but also to the profession at large, to observe how this "band of experts" discriminate between "nostrums" and numerous proprietary preparations, some of which have already found a place in their advertising columns, and have thus received the stamp of their approval. In these iconoclastic days the birth of an ethical arbiter, such as the *Philadelphia Medical Journal* evidently aims to be, marks an epoch in the history of medicine.

THE MEDICAL NEWS cordially welcomes the new journal to the sisterhood of medical weeklies, and predicts for it the meed of success which its enterprise merits and its unquestionable excellence will command.

ECHOES AND NEWS.

Bubonic Plague in Bombay.—Despatches from Bombay report a recrudescence of the plague in the vicinity of that city. Many new cases are daily reported, and many deaths have occurred. Up to date 14,257 cases and 11,882 deaths have been reported in Bombay alone.

Higher Salary Desired.—The subordinate staff of the Paris Medical Faculty have sent to the Deputies and Senators a petition signed by sixty-four medical men asking for an increase of salary.

Bequests to Charity.—By the will of the late Charles H. Contoit, who recently died in New York City, the bulk of his estate, estimated to be worth over \$1,000,000, is left to New York charitable institutions.

Pneumonia Transmitted by Parrots.—According to the Paris correspondent of the *British Medical Journal*, seventy cases of psittacosis (pneumonia transmitted by parrots) have occurred in that city and its environs since 1892.

A New Editor for the Columbus Medical Journal.—Dr. H. Harvey Reed has tendered his resignation as president, editor, and manager of the Columbus Medical Publishing Company, and Dr. J. E. Brown has been elected editor and manager.

Chinese Medical Maxime.—"The physician who is sure of his diagnosis says little; he who is not sure talks much without being understood." "The greatest enemy to the health of men is woman; the worst enemy to the health of women is man."

Medical Colleges Must Give Bond.—In the State of Pennsylvania all medical colleges are required to give a bond of \$1000 as a guarantee that no human bodies will be dissected except those which come to them through the regularly appointed legal channels.

Bequest to the Philadelphia Hospitals.—Mrs. Henrietta R. Fales Baker, whose will was recently probated in Philadelphia, left an estate worth \$2,000,000. Should her son and daughter die without issue the whole estate will revert to the University of Pennsylvania and the Pennsylvania Hospital.

Dr. Reed's Appointment.—Dr. Harvey Reed has accepted the position of superintendent and surgeon in charge of the Wyoming General Hospital located at Rock Springs, Wyoming. This hospital is a State institution, and the building, when completed, will have accommodations for eighty patients.

Loomis Sanitarium for Consumptives.—The Building Department recently refused to approve plans for this hospital, soon to be erected in New York City, on the ground that they did not call for a fire-proof building. A writ of mandamus has been applied for to compel the department to approve the plans.

Pohemus Memorial Clinic.—The opening of this institution, which is situated on the southwest corner of Henry and Amity streets, Brooklyn, N. Y., took place on December 30th. The building provides luxurious accommodations for clinic patients, and lecture-rooms and an amphitheater for the use of the Long Island College Hospital.

Obituary.—Dr. Henry Parke Wilson recently died at his home at Baltimore, Md. Dr. Wilson was born in Work-

ington, Md., in 1827. He was graduated from Princeton College, and studied medicine in the University of Virginia and the University of Maryland. He settled in Baltimore in 1851, and practised medicine there until the time of his death.

Sanitary Inspection of Barber-shops.—The Metropolitan Barbers' Association of the State and City of New York have prepared a bill which will be presented to the Legislature in the near future. Among other things the bill provides for a sanitary inspection of all barber-shops and for the appointment of a board of inspectors, to be selected from the ranks of the Association.

A Question of Pronunciation.—A correspondent writes to *The Lancet* (London) pointing out the fact that the usual pronunciation of the word "angina" (an-jai'na) is incorrect. Etymology and metrical usage make it "an-ge'na," with the penult short. The editor of *The Lancet* adds that the 1886 edition of Smith's Small Latin-English Dictionary gives the latter pronunciation of the word.

Preventive Inoculation and Plague.—From the joint report of the recent epidemic plague in Portuguese India, presented by M. Haffkine and Surgeon-Major Lyons, the president of the Bubonic Plague Research Committee, it is seen that the preventive serum was employed with good effect, both as regards limiting the number of persons attacked and in decreasing the mortality. Especially good results were obtained when strong lymph was used.

Dr. O'Dwyer III.—The medical profession throughout the world will be pained to learn of the serious illness of Dr. Joseph O'Dwyer of New York, who has contributed so much to diminish the death-rate in laryngeal diphtheria by the invention of his now famous laryngeal tubes. Dr. O'Dwyer has been suffering from what he himself diagnosticates as tuberculous meningitis. His diagnosis has been concurred in by numerous professional brethren who have been called in. Dr. O'Dwyer himself admits the fatal nature of his illness.

A Naval Hospital Corps.—A movement is under way toward the organization of a naval hospital corps similar to that of the army. It is proposed that the corps consist of twenty pharmacists at \$75 per month, five at \$100; sixty-five hospital stewards at \$60; thirty-five first-class hospital apprentices at \$24; sixty hospital apprentices at \$18; and that naval hospitals be established at Portsmouth, N. H., Chelsea, Mass., Newport, R. I., New York City, Philadelphia, Washington, D. C., Norfolk, Va., Pensacola, Fla., Mare Island, Cal., and Yokohama, Japan.

Dr. Roswell Park.—Our readers will be gratified to learn that Dr. Roswell Park of Buffalo, who has been abroad during his convalescence from a serious septic infection, has returned to his field of labor. While passing through New York City, he called at the editorial office of THE MEDICAL NEWS, and we can, therefore, assure his many friends from personal observation that although

the doctor does not present the satisfactory picture of perfect vigor which characterized his former appearance, he gives evidence of being on the way to complete restoration of health.

New Hospital for Contagious Diseases.—The opening of the New York Hospital for Scarlet Fever and Diphtheria, at the foot of East Sixteenth street, took place December 30th. The hospital consists of two pavilions, forming the letter "U," each two stories in height, and built of pressed brick. The laundry and fumigating apparatus are in the center. A special feature is the solarium for the use of convalescent patients. It is situated on the south side of the building and has a wall of heavy plate-glass. There is also a roof-garden. The beds are of iron, the chairs and tables of agate, and the shelves of glass. The hospital was open for patients on the first of January. There are no free beds.

Dr. Sherow a Victim to Cocain Poisoning.—Dr. E. J. Sherow of New York died at his home New-Year's morning from the effects of an overdose of cocain. Dr. Sherow graduated from the College of Physicians and Surgeons of New York in 1890, and supplemented his medical education by hospital experience at the New York, and Nursery and Child's Hospitals. Four years ago the Doctor began treating himself with cocain for the relief of annoying nasal catarrh. Steadily the insidious habit grew upon him, and he became a victim of cocain. Aside from this, it is said his professional prospects were bright. The probabilities are that he took the fatal dose of the drug by mistake.

St. Louis Laryngological and Otological Society.—On December 27th the St. Louis Laryngological and Otological Society was formed, composed of those physicians of St. Louis who limit their practice to the treatment of diseases of the nose, throat, and ear. Dr. J. C. Mulhall was elected president; Dr. J. B. Shapleigh, vice-president; Dr. F. M. Rumboldt, secretary, and Dr. A. S. Barnes, Jr., treasurer, for the year 1898. Meetings will be held monthly, and it is expected that the scientific programs furnished will be highly interesting and instructive. While the membership is limited, the privilege of inviting professional friends is reserved to each member.

Filtration of Milk.—In several European cities, sand filtration of milk is employed at a central depot after its arrival from the country. The filters consist of large cylindrical vessels, divided by horizontal perforated diaphragms into five superposed compartments, of which the middle three are filled with fine clean sand, sifted into three sizes, the coarsest being placed in the lowest, and the finest in the topmost of the three compartments. The milk enters the lowest compartment through a pipe under gravitation pressure, and after having traversed the layers of sand from below upward, is carried by an overflow to a cooler fed with ice water, whence it passes into a cistern from which it is drawn direct into the locked cans for distribution. Milk thus filtered is not only freed from dirt, but the number of bacteria is reduced to about one-

third. In new milk the loss of fat is said to be very slight, but the quantity of mucus and slimy matter retained in the sand is surprising. The sand is renewed each time the filter is used.

SPECIAL ARTICLE.

EXAMINATION OF APPLICANTS FOR POSITIONS IN THE MARINE HOSPITAL SERVICE.

A BOARD of officers will be convened at Washington, D. C., January 25, 1898, for the purpose of examining applicants, for admission to the grade of Assistant Surgeon in the United States Marine Hospital Service.

Candidates must be between twenty-one and thirty years of age, graduates of a respectable medical college, and must furnish testimonials from responsible persons as to character.

The following is the usual order of the examination:

1. Physical.
2. Written.
3. Oral.
4. Clinical.

In addition to the physical examination candidates are required to certify that they believe themselves free from any ailment which would disqualify for service in any climate.

The examinations are chiefly in writing, and begin with a short autobiography by the candidate. The remainder of the written exercise consists in examination on the various branches of medicine, surgery, and hygiene.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital, and when practicable candidates are required to perform surgical operations upon the cadaver.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur.

Upon appointment the young officers are as a rule first assigned to duty at one of the large marine hospitals, as at Boston, New York, New Orleans, Chicago, or San Francisco.

After five-years' service Assistant Surgeons are entitled to examinations for promotion to the grade of Passed-Assistant Surgeon.

Promotion to the grade of surgeon is made according to seniority, and after due examination as vacancies occur in that grade. Assistant surgeons receive \$1600. Passed-assistant surgeons, \$2000, and surgeons, \$2500 a year. When quarters are not provided, commutation at the rate of thirty, forty, or fifty dollars a month, according to grade, is allowed.

All grades above that of assistant surgeon receive longevity pay, *i. e.*, ten percentum in addition to the regular salary for every five-years' service up to forty percentum after twenty-years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses. For further information, or for invitation to appear before the board of examiners, address Walter Wyman, Supervising Surgeon-General, United States Marine Hospital Service, Washington, D. C.

CORRESPONDENCE.

ANSWER TO DR. WILLY MEYER.

To the Editor of THE MEDICAL NEWS.

DEAR SIR: Please grant me sufficient space in your worthy paper to mention that I reaffirm my statement made in my article on "A New Method of General Anesthesia" regarding the doses in the administration of the Schleich mixture. My claims are based on personal experience which, although not very large, is sufficient to convince me of the correctness of my observations, and to prove that the use of such large amounts of the anesthetic as Dr. Willy Meyer states he uses is wholly unnecessary. Details of my observations will be presented at a later date. Yours very truly,

M. L. MADURO, M.D.

NEW YORK, December 24, 1897.

PRE-COLUMBIAN LEPROSY IN AMERICA.

To the Editor of THE MEDICAL NEWS.

DEAR SIR: I read in your report of the recent Lepra Conference at Berlin that, "He (Virchow) considers that the mutilations observed in certain ornamental figures found on what evidently is Pre-Columbian pottery, point to the existence of leprosy on the American Continent before the Spanish discoveries. There is no other disease which could have produced the mutilations of the feet observed in the figures. The nasal mutilations point to lupus rather than to leprosy, but Professor Virchow called attention to certain faces in Professor Lassar's collection of wax models of Norwegian lepers which very closely resemble those found on the potteries."

This discussion was on my paper: "The Question of Pre-Columbian Leprosy in America." Your reporter, however, fails to give what Dr. Carrasquilla of Colombia had to say on the subject. This South-American doctor, who knows a great deal about South-American history and customs, very probably far more than Professor Virchow, as soon as he saw the photographs which accompanied my paper, said: "The clear cut of the nose and upper lip shown in the pottery faces, and the amputated feet represent punishment inflicted by the Incas for certain crimes." I think that this settles the matter. As Professor Virchow said, "No other disease could have produced the mutilations observed in the feet;" but the sharp sword of an executioner could.

Other mutilations I am inclined to consider as evidences of lupus and syphilis; yet, it is natural to think if the amputated nose and lip are the result of punishment, that the amputated feet are so, too. But then there are marks which point to disease, such as the prognathous jaws, the spinal curvature, the side of the face eaten away, etc., which appear in the amputated-feet images, at least in some of them.

Perhaps this will make Dr. Carrasquilla pause; but, if these signs lead us to suspect disease, they just as naturally make us reject the idea of this disease being leprosy. It may have been facial lupus, tuberculosis of the vertebralæ, or syphilis. If leprosy had eaten off the feet, as

Professor Virchow thinks, it would at the same time have mutilated the hands. Now, the hands in all the images are perfect.

I will conclude in a few words: The mutilations shown by my photographs may represent punishment, and some of them lupus, etc., but, Professor Virchow to the contrary notwithstanding, *not leprosy*.

ALBERT S. ASHMEAD, M.D.

NEW YORK, December 26, 1897.

OUR PHILADELPHIA LETTER.

[From our Special Correspondent.]

THE ISOLATION OF THE CRIMINAL INSANE—AGAINST THE ESTABLISHMENT OF A FOUNDLING ASYLUM—PHILADELPHIA NEUROLOGICAL SOCIETY—LARGE CONTINGENT BEQUESTS TO PHILADELPHIA HOSPITALS—DR. F. P. HENRY FOR HEALTH-OFFICER—DR. G. S. WOODWARD APPOINTED A MEMBER OF THE BOARD OF HEALTH—IN MEMORY OF DR. HARRISON ALLEN AND DR. GEORGE H. HORN.

PHILADELPHIA, January 1, 1898.

THE State Board of Charities of Pennsylvania is making a determined effort to establish in this State, by an act of Legislature, a hospital exclusively for the treatment of insane convicts and the criminal insane, there being at the present time 118 of the former, and 158 of the latter class confined, under wholly unfavorable surroundings, in the various State penitentiaries. Between the insane convict and the criminal insane there seems to be a decided difference, according to the general sentiment of the public, which holds that the one is a person who, while insane, commits a criminal offense, while to the other is attached the stigma of criminality prior to the development of insanity. This fine point which is shared by the State law-makers, as well as by the laity at large has been in the past the stumbling-block which has thwarted the efforts of the Board and of others in favor of their project; and their attention at present is directed against this prejudice, in many quarters, of placing these two classes of lunatics in the same category, and in the same institution. The intention is to establish a moderate-sized hospital on the grounds of some one of the State penitentiaries, and to there carry out the efficient plan of caring for the "detained," we will say, insane, which has been so long in vogue at the New York State Hospital for the criminal insane, first at Auburn, and later at the present site at Matteawan.

A unanimous opinion against the advisability of establishing a foundling asylum in this city was expressed last week at a meeting of several prominent citizens, held to consider this subject, about which considerable agitation is going on in other quarters. Physicians, the law, the clergy, and the laity were represented at this meeting, and declared the founding of such an institution inexpedient, lowering to the general moral standard of the community, and entirely to be deprecated. It remains, however, to see what effect, if indeed any, this protest will have upon the growth of the project. Could the helpless babes abandoned on the vacant lots, or heartlessly consigned to some one else's doorstep have a voice in the matter, which would they prefer, a childhood passed in the precincts of the city almshouse, or the training and care and

comforts of an institution devoted to their welfare? And under which of the two surroundings will the name, bastard, be sooner lost?

At the last meeting of the Philadelphia Neurological Society, held December 20th, Dr. James Hendrie Lloyd exhibited a case of astasia-abasia, occurring in a hysterical woman, who had recently undergone a gynecologic operation. The patient had been confined to bed under the delusion that she was paralyzed, but had improved under suggestive therapeusis, to such an extent that she is now able to walk without support, although incoordination of gait and station was still present. Dr. D. L. Edsall reported, by invitation, a case of dissociation of sensation of the syringomyelic type in Pott's disease. The patient, a boy, in early adolescence, suffered from caries of the second, third, and fourth cervical vertebrae, together with the manifestations of analgesia, thermo-anesthesia, and the preservation of tactile sensation—the dissociation of sensation generally believed to be a characteristic symptom of syringomyelia. The speaker expressed his belief that the lesion causing these symptoms was an intraspinal tumor, probably associated intraspinal tubercle. Dr. W. E. Hughes exhibited, by invitation, a tumor of the pituitary body, and also described a similar case. One of these neoplasms proved to be a small lymphosarcoma; the other a large carcinoma. It is of interest to note that symptoms of acromegaly were absent in both cases. Dr. A. A. Eshner further discussed an interesting case of meningitis which had been presented before the Society at a previous meeting, provoking at the time considerable discussion of the question of the differential diagnosis between basilar meningitis and posterior sclerosis. In the case in question *post-mortem* examination showed that death was due to cerebellar hemorrhage, following a diffuse meningo-encephalitis. Dr. H. M. Schreiner reported an instance of arsenic neuritis, in a choreic girl ten years of age, who, after the administration of moderate amounts of the drug, developed widespread paralysis.

A contingent bequest of the late Henrietta R. Fales-Baker bequeaths, in event of the death of her son and daughter without issue, the sum of \$2,000,000 to the Pennsylvania Hospital, to erect and maintain a hospital to be known as the Fales Hospital for Surgical and Infirmary for Chronic Diseases. The University Hospital is to receive, under the same terms, \$200,000, and the University of Pennsylvania \$300,000 to endow professorships in the medical and scientific departments.

Dr. Frederick P. Henry, Professor of Practice of Medicine in the Woman's Medical College of Pennsylvania, is being urged for the position of Health-Officer of this port by those interested in the elimination of this important office from city politics, and it is hoped that Governor Hastings will act favorably on the recommendations being made in favor of Dr. Henry's appointment. The resignation of the former incumbent of the office, Theodore B. Stulb, has been "accepted" by the Governor.

Dr. George S. Woodward has been appointed by the Mayor to fill the vacancy in the Philadelphia Board of Health, caused by the death of Dr. William H. Ford.

A special meeting commemorative of the late Doctors Harrison Allen and George H. Horn, the two distinguished scientists, was held by the Academy of the Natural Sciences on December 31st. Addresses were made by Doctors Daniel G. Brinton, Edward S. Nolan, Professor John B. Smith of Rutgers College, and others.

The total number of deaths occurring in this city for the week ending December 25, 1897, was 396, of which 106 were in children under five years of age. Deaths from diphtheria numbered 24; from scarlet fever, 2; and from enteric fever, 15. The general health of the city is fair, and the number of new cases of zymotic diseases is on the decline, as compared to previous weeks reported.

The annual report of the Registration Division of the Bureau of Health for the year 1897 shows that the total number of deaths in Philadelphia last year was 22,735, or a ratio of 18.72 per thousand inhabitants. This proves to be the lowest annual death-rate recorded here since 1879, when the ratio was 17.37 per thousand. During the past year there were 1231 deaths from diphtheria, or an increase of 369 fatal cases over 1896; 282 deaths from scarlet fever, an increase of 221 over 1896; and 401 fatal cases of enteric fever. Pulmonary tuberculosis caused the death of 2388 persons, while the victims of influenza, which was not considered to have been especially prevalent during the last twelve months, numbered 160. The past year, among other things, witnessed 20 homicides and 143 suicides within the city limits.

OUR BERLIN LETTER.

[From our Special Correspondent.]

LECTURES TO THE UNIVERSITY STUDENTS OF ALL DEPARTMENTS ON "THE SIGNIFICANCE AND PROPHYLAXIS OF VENEREAL DISEASES"—THE THERAPEUTIC INFLUENCE OF CONGESTION AND INFLAMMATION—UNCOOKED FISH AND PARASITIC AND MICROBIC DISEASES—NOMENCLATURE OF BACILLI AFTER VARIOUS DISCOVERERS.

BERLIN, December 31, 1897.

PROFESSOR LASSAR is at present delivering the best-attended lectures at the University of Berlin. Nearly a thousand students of all faculties, mainly, however, non-medical men, will be found in the largest lecture-room of the principal University building any Tuesday evening, listening with every appearance of the greatest interest. The subject is "The Significance and Prophylaxis of Venereal Diseases." These lectures have now been given during the past three years, and the opposition manifested toward them in certain university circles before their institution and during the first months, when they were on probation, has faded away before the evident beneficial effect of accurate knowledge on subjects of such immense practical importance.

There is no danger, in the present state of our knowledge of venereal diseases, that "familiarity will breed contempt." Additions to our knowledge during the past fifteen years have practically revolutionized opinions as to the results of venereal infection of whatever kind. The significance of venereal diseases has become much more comprehensive, and the idea that they are a passing

event in the life of mortals, that, like the diseases of childhood and colds in the head which nearly every one must go through and which almost never have any serious consequences, is now entertained only by those who are not abreast of the times.

No better sermon could be preached to the ordinary young man thrown for the first time on his own responsibility amid the temptations of a great city, for universities, fortunately or unfortunately, are, in our day, situated in large cities, than the inculcation of a clear, succinct idea of the present state of medical knowledge with regard to venereal diseases and their immediate and remote consequences. It would almost seem to be the duty of university authorities to furnish the opportunity for the acquirement of such knowledge as a safeguard of health quite as much as the encouragement of athletics.

Here university responsibility in the matter has been squarely faced and met by the establishment of a special lectureship, supported by an extraordinary government provision for the purpose. The matter is excellently placed in Professor Lassar's hands. The interest has never waned, and there is always, as previously mentioned, a large and appreciative audience at the lectures.

No exaggeration is required to make the fearful consequences of venereal disease clear, and there has been, on the other hand, no mincing of matters in the lecturer's descriptions. The lectures are illustrated by stereoscopic pictures, and in the first lecture of the course, for example, after the diplococcus of Neisser, as found in a recent case of gonorrhea, had been exhibited, the same organism from a case some fifteen years old, where its existence was absolutely unsuspected by the patient, was shown. The conjugal infection that had followed all unwittingly, and the consequent innocent suffering involved was dwelt upon. Some of the statistics of serious diseases of the female pelvic organs which have been traced to such infections were given. The personal experience of even the youngest of the men was appealed to as furnishing examples of young and healthy women falling victims to insidious disease shortly after marriage, the root of the trouble, not being some obscure woman's ailment, insidiously developing no one knew how, but, in reality, an infectious remnant of a husband's gonorrhea, existing very often without his knowledge.

To most young men such information comes as a distinct surprise. Information of the most varied kind, from quacks and mountebanks, from advertisements, and so-called medical books he has had, but the evident purpose to exploit his failings has led him to distrust it all. Plain talk from a man thoroughly conversant with the subject, utterly trustworthy and disinterestedly solicitous, he heartily welcomes.

It is an interesting study to watch the students' faces while they hear such home truths as that a gonorrhreal infection may continue many years, or may finally end fatally in involvement of important membranes, or that most of the so-called women's diseases, with their necessitated mutilating therapeutics, and 80 to 90 per cent. of the blindness in the world, is the result of innocently acquired gonorrhreal infection. Such information puts in a

new light a host of things which before seemed trivial, and shows their real importance. When to all this is added the fearful significance of syphilis in the development of the hopelessly incurable nervous diseases, from the apoplexies to paresis in middle life to tabes and the varied results of arterial degeneration in later years, a wonderful lesson is taught. A lesson, too, that under present circumstances is owed to every young man; for the unknown dangers of life, with their inevitable consequences, are plentiful enough already without leaving him in the dark on a subject like this, where definite knowledge is ready at hand and prophylaxis a comparatively simple matter.

Such a course of lectures would be eminently suitable for our large American universities. That they would be well attended no one would think of doubting. That they would do great good seems just as indubitable. The candid admission, however, of the imminence of the danger to young men is not in accord with Anglo-Saxon principles generally in such matters, and so, it may be supposed, the suggestion of such a thing to most university faculties would be met by prompt discouragement. Some time, however, in the near future the wisdom of such a course of action will dawn upon educators who are sincerely interested in the student's welfare, and then young America, too, will have the chance to learn these important truths.

Dr. Hamburger has just published some very interesting investigations of the influence of congestion and inflammation on bacterial life (*Deutsche Med. Wochenschrift*). He starts with the observation, which has now been confirmed upon all sides, that patients with mitral stenosis very seldom acquire tuberculosis of the lungs; while, on the contrary, those affected by congenital pulmonary stenosis almost invariably are ultimately carried off by this disease. He finds that, while jugular serum—*i. e.*, the serum of blood drawn from the jugular vein—is much more bactericidal than ordinary serum taken from blood-vessels at the periphery of the body, carotid serum (from the internal carotid) is much less bactericidal in character.

He has found, too, that when CO₂ is added to ordinary serum its bactericidal properties are much increased. This procedure adds, of course, to the alkalescence of the serum. He calls attention to the fact, which Behring and Cantani and other distinguished serum-therapeutists have already pointed out, that increase of alkalescence in animal serum increases its protective power.

Dr. Hamburger thinks that there is here the explanation of certain phenomena of inflammatory processes, and points out that the congestion incident to these is perhaps a protective reaction on the part of Nature which may well deserve imitation in local infections. He finds, too, that in such processes there are changes in both red and white blood-cells, notably a swelling and irregularity of outline which is accompanied by the giving off of CO₂, which is obviously, to his mind, only another phase of this natural protective process.

Among the varieties of food which have been the subject of investigation, fish has not had as important a

place as some others. The epidemics of typhoid fever which have occurred during recent years have called attention to the fact that shell-fish constitutes almost the only animal article of diet which is now consumed uncooked. The necessity for extreme caution and the advisability of eating this variety of food only when cooked, unless one knows the origin, just as with water, is being insisted upon.

Attention has also been called to the fact that there are certain forms of smoked fish often consumed uncooked which are equally liable to be infected with the morbid element of various infections and communicable diseases, and that the process of smoking does not destroy the vitality of the unwelcome additions to the fish. Certain of the Baltic provinces of Germany have had quite a few cases of fish tapeworm, *bothriocephalus latus*, and some scattered cases throughout the Empire have been observed as the result of the more careful diagnostic methods of recent years. A note of warning has recently been sounded, and it would seem as though fish will soon come in for as careful government investigation, here in Germany at least, as do other animal foods.

The nomenclature of bacilli does not grow more satisfactory as time goes on and the field widens. More than one bacteriologist has lately been outspoken in the hope that a botanic classification of bacteria may soon replace the personal nomenclature which is so utterly unscientific and so varying under different circumstances. It is really the general practitioner and the specialist in other lines who have just cause for complaint. It is they who find it more than annoying, for it is often positively confusing. The calling the bacillus of tuberculosis Koch's bacillus may seem unpardonable enough to those who know better, but it has been known to occur even here. In a recent work on laryngology the bacillus of typhoid fever is called Gaffky's bacillus, with never a word of Eberth. The honor of having their names attached to the microbes of diphtheria and pneumonia is divided among four men, while the world knows that there are least four others, one of them an American, who equally deserve the honor. This faulty method will continue, it may be presumed, until, as in anatomy, an organized effort at systematization will have to be made, and then the adopted nomenclature will be as slow in finding its way into general use as have the results of the very meritorious effort of the anatomic committee in the same direction. Here, meantime, every step toward a purely scientific classification and nomenclature from the botanic standpoint is receiving deservedly widespread encouragement.

TRANSACTIONS OF FOREIGN SOCIETIES. London.

IMMEDIATE REDUCTION OF ANGULAR DEFORMITY OF THE SPINE—PREVENTION OF ENTERIC FEVER—PNEUMOTHORAX OF SOME MONTHS' DURATION CURED BY FREE INCISION—MECHANOTHERAPY OF MOVABLE KIDNEY—HERNIA OF THE ABDOMINAL CICATRIX AND THE OPERATIONS FOR ITS CURE—EMPYEMA OF THE ANTRUM OF HIGHMORE.

The Clinical Society at its meeting of November 26th continued the discussion of CALOT'S paper on immediate

reduction of angular deformity of the spine. Those members who expressed themselves as opposed to this operation base their objections chiefly on theoretic grounds, and besides, claim that the good results reported are of too short a duration, to enable the deduction of safe conclusions. CLARKE insisted that it is bad policy to keep a patient in a plaster jacket, as Calot's plan necessitates. Those who advocated the operation pointed to the success which Calot has had in more than 600 cases. THOMAS said that the theoretic objections that such treatment might produce (1) paraplegia, or (2) abscesses, or (3) dissemination of tubercle have all been proved to be groundless. Only one objection remains, *viz.*, that Nature cannot fill the "gap" with new bone; but as she is quite able to accomplish this in other bones in which surgeons have caused a solution of continuity, there seems no reason to doubt her ability to do the same in the spine.

At a meeting of the Royal Medical and Chirurgical Society, November 23d, POORE opened a discussion upon the *prevention of enteric fever*, by stating that the contagion of enteric fever is contained in excreta, and may gain access to the bodies of the healthy by means of drink, food, or inspired air. Records were given of forty-six instances, occurring during the last thirty years, in which epidemics followed contamination of public water-supplies. Attention was called to the possibility of pollution, often facilitated by the bad practice of laying water- and sewer-pipes side by side, neither being open to inspection. Pollution at the periphery is liable to occur whenever a tap is left turned on, and a vacuum thus produced in the supply-pipe by intermission of the supply, so that gas, or water, or even solids, may be drawn back into the house-pipe. Thus, in one house the water-pipe at certain times yielded blood, which was sucked into an open tap in a slaughter-house next door. It must be remembered that in big towns there are many foul places other than water-closets over which there may be open taps. A few of the practical remedies suggested were: the maintenance by water companies, just as by large dairies, of a staff of chemists and bacteriologists; the separation of water- and sewer-pipes, and the location of them as far as possible in subways; cremation of excreta in country places, or the scattering of this material upon suitable soils, when, under the influence of sun and rain, aided by frequent light plowing, such material soon becomes harmless. As enteric fever is preeminently a water-borne disease, the excreta from patients having it should never be mixed with water, as the property of water is to return to its source. There can be no purity of soil without tillage, and organic filth must be placed upon the humus to increase the food-supply, and not beneath it to endanger the water-supply. At present our population is silently taught that the only decent way to treat feces is to mix them with water to brew sewer-gas, and thus insure the aerial, as well as the aquatic, convection of enteric fever.

THORNE did not admit that the conclusions of Poore in regard to the danger of the present systems of water and sewage are correct, and in support of his position he quoted statistics to prove that the death-rate from typhoid fever is less than half of what it was under the old

systems of wells and privies. No doubt the spreading of normal stools upon frequently tilled fresh soil in a short time destroys all enteric bacilli; but it has not been shown that this is a safe practice to follow in disposing of infected sewage. Experiments have shown that though typhoid bacilli will grow only a few days in sterilized virgin soil, they will grow 200 days in sewage-soaked soil which has not been similarly sterilized.

BOYCE made a plea for more thorough bacteriologic examination, which he regards as the real safeguard of a community from epidemics of enteric fever.

At a meeting of the Medical Society, November 22d, WEST read a paper on a *case of pyopneumothorax of some months' duration cured by free incision*. About four pints of seropurulent fluid were removed, and the patient rapidly improved, though a tube was kept *in situ* seven months. As a rule such cases are left alone from a belief that the lung is bound down by adhesions. The reader cited several cases to show that this view is by no means always correct. Another false notion is that pneumothorax is generally associated with tuberculosis of the lung, and that the pressure of the air or fluid in the pleural cavity will arrest the development of tubercle, a view absolutely without foundation, though it was once held in regard to serous or purulent collections in the chest. In short, the presence of air does not effect the principles of treatment in case of fluid in the pleural cavity.

BOWLES said that the position of the patient with the sound side upward is of great importance during anesthesia in pyopneumothorax. Two cases have been recently recorded, in each of which death followed the turning of the sound side of the patient upward to facilitate operative procedures, death being due to a flow of pus into the bronchial tubes of the sound lung.

ECCLES read a paper on the *mechanotherapy of movable kidney*. Sixteen patients were treated by means of "rest," with especial attention to abdominal massage and exercise during periods varying from two to eight weeks. Seven of these patients disappeared from observation; in one instance the treatment was a complete failure, but the remaining patients almost immediately improved, and five of them were greatly, and to all appearances, permanently benefited by abdominal massage, exercises, and the application of a pad and belt. It is of importance that the displaced kidney be replaced as early as possible and kept in its normal position. Replacement is best secured when the patient lies upon the sound side, flexes the thigh of the affected side acutely on the abdomen, and extends the arm of that side well above the head.

DORAN read a paper before the Harveian Society, November 18th, on *hernia of the abdominal cicatrix and operations for its cure*, in which he took the ground that such conditions may be most satisfactorily relieved by suture of the abdominal wall in layers, avoiding a too deep suture in the peritoneum, in which case this membrane may be everted and an actual hernial pouch produced. The edge of the rectus muscle should be included in the aponeurotic suture.

ROUGHTON read a paper on *empyema of the antrum*

of Highmore. The essentials of treatment were stated to be: (a) a removal of the cause by dealing with nasal or dental disease; (b) evacuation and drainage of pus; (c) antiseptic irrigation, and (d) removal of morbid tissue (when present) from the antrum. He advocated that an alveolar tube be fitted in every case. The points which SPICER regards as essential to the success of a radical operation are: (1) a large opening through the canine fossa; (2) thorough curettage of the diseased antral mucosa; (3) very free counter-opening from the nose into the antrum, and (4) no drainage apparatus (the air-blast sufficing to clear the antrum of pus until the mucosa is healthy). No bad results, certainly no sinking of the cheek, had occurred in any of his cases.

Berlin.

ADVANTAGES OF CELLULOID-TRICOT-CORSETS.

At the session of the Medical Society, on November 10th, JACQUES spoke of the advantages of the celluloid-tricot-corset. Celluloid has ordinarily been employed upon wide strips of mull in order to make a stiff corset, but there is danger, especially in the case of women having a large bust and small waist, that there will be parts of the corset which contain air-spaces. This can be avoided by using a very light tricot in the following manner: The cloth is first cut in squares large enough to reach conveniently around the patient. One such piece is stretched tightly about her, an easy process owing to the elasticity of the tricot, and carefully rubbed full of celluloid-gelatin. Another layer is applied and this again filled with celluloid-gelatin, and so on until the corset is sufficiently thick. After two days it is cut off and prepared with laces. If applied in this way the corset will be both elegant and durable.

At the session of November 24th, PLACZEK described a case of uncomplicated paralysis of the serratus magnus. The only history obtainable from the patient was that some months previously he had fallen from a ladder, jerking his right arm above his head. Soon after he had had pain in the right suprascapular region, which was ultimately followed by the paralysis. If the patient attempted to bring his arm from a horizontal position forward, the scapula fell away from the thorax like a flail. If an attempt was made to raise the arm to a vertical position it failed, unless the lower angle of the scapula was drawn outward, thus making good the deficient action of the serratus muscle.

PLACZEK also showed a patient who suffered from spasm of the masseter muscle. This patient was a locomotive fireman, and by reason of his occupation was subjected to sudden changes of temperature, increased by the habit of leaning out of the window. The patient suffered from neuralgia of the third branch of the fifth nerve, and with the attacks of pain. There usually was a contraction of the masseter muscles of both sides, the spasm ending with the mouth wide open. The attacks occurred about every five minutes.

At the session of the Union for Internal Medicine, November 22d, LOWENTHAL spoke of disinfection of the intestines. There are two methods of determining the

efficacy of an intestinal antiseptic, one being the bacteriologic examination of the stools. This has proved absolutely unreliable. The other method is the chemic examination of the urine in order to determine quantitatively the presence of those substances which are due to intestinal putrefaction. Using this method as a test, Lowenthal made experiments with amyloform, a substance which yields formaldehyd if introduced into the alimentary tract. In the test cases the dose was gradually increased until formaldehyd could be demonstrated in the urine. The quantity of the products of intestinal fermentation in the urine were distinctly decreased by this means in spite of the somewhat constipating effect of the drug.

STRAUSS has made similar experiments with steriform, and BLUMENTHAL with irol. Both of these observers reported inconstant results.

ZIEGELROTH spoke of the prophylactic value of periodic sweats. Recently, numerous investigations have proved that sweat contains pathogenic microbes. The speaker himself, by a comparison of the bacteriologic condition of water, before and after a patient had bathed in it, found that the water contained three times as many microbes after a sweat bath as after an ordinary bath. The advantages of such a bath before an operation are therefore plain, and serves an even greater purpose in stimulating cellular oxidation. Such baths are contraindicated in diseases of the heart and circulatory apparatus. They act as a specific in rheumatism, and while they may increase the symptoms of an attack of gout they improve the general condition of the patient. The specific gravity of the blood is the same before and after a bath, so that the blood is not changed by it. Two points should be carefully observed: first, the duration of the bath should not exceed fifteen to thirty minutes, and second, care should be taken to at once replace the fluid which has been lost by the sweating by copious draughts of water.

SOCIETY PROCEEDINGS.

THE NEW YORK CLINICAL SOCIETY.

Stated Meeting, Held November 26, 1897.

THE President, DR. FRANK W. JACKSON, in the Chair.

DR. B. FARQUHAR CURTIS read a paper, entitled SOME EXPERIENCE WITH URETHROTOMY FOR STRicture.

The author said that in speaking only of urethrotomy he did not wish to be understood as believing in this operation to the exclusion of dilatation. The paper was devoted to a discussion of the results of operations performed with certain definite ideas in view as to treatment. The cases, though few in number, were much alike, and were all observed in hospital practice. The list included nearly twice as many external as internal operations, owing to the severity of the class of cases seen in St. Luke's Hospital. The operator had aimed to make the urethra of sufficient caliber to admit a No. 30 (French) sound measured with a bulbous bougie, which, as is well known, usually is two sizes smaller than a steel sound of the same num-

ber. The usual aseptic precautions were observed in all instrumentations and operations. Steel and soft rubber instruments were boiled. For the urethra, Thiersch's solution was employed, except in a few very foul cases, in which a 1-to-10,000 or even a 1-to-5000 solution of bichlorid of mercury had been used. As a rule it was necessary to incise the meatus, the incision usually being made on the floor of the urethra, although the roof and the sides were nicked when necessary. About half of the patients were operated upon under cocaine anesthesia. Ill effects from the use of this drug were not observed, although the delay and the nervous excitement incident to the employment of local anesthesia prevented its use in many instances; it is necessary to retain the cocaine solution in the urethra four or five minutes, and to wait as long again before beginning the operation. Failures with this method of anesthetization may generally be explained by too great haste. Cocaine intoxication is the result of allowing the solution to remain in the urethra. Nitrous oxid gas is also a useful anesthetic agent in these cases.

The two dangers of internal urethrotomy are hemorrhage and sepsis. In none of the cases was hemorrhage alarming. When it had been free, he had employed a strip of muslin, one foot long, and as wide as the penis was long, torn at each end so as to make a many-tailed bandage. A couple of layers of gauze were wrapped around the penis and then bass-wood splints were applied, and finally, over them, the many-tailed bandage. It is, of course, necessary to loosen the dressing during urination. The foreskin must always be retracted before applying the dressing, else it will certainly swell badly. In only one or two cases had the severity of the hemorrhage made it necessary to insert a catheter into the urethra, and then bandage the penis. The perineal crutch had only been employed in one or two cases. Sometimes an ice-bag or a hot urethral injection of alum solution had been of value. The immunity from hemorrhage was doubtless due to the fact that the operation of internal urethrotomy had been restricted to the anterior five and one-half inches of the canal, and in a large proportion of the cases the wound extended only to a depth of three inches from the meatus. In those few cases in which chill and rise of temperature occurred, the administration of 10 or 15 grains of quinin two hours before the passage of a sound, prevented the chill and fever, so that it was not probable that very serious sepsis was present.

In one case, a fatal result, probably from auto-infection, occurred—the only death from internal urethrotomy in the speaker's experience. The case was that of an Italian, twenty-eight years of age, who was admitted to St. Luke's Hospital, December 8, 1891. He had had one attack of gonorrhea eleven years previously. No instrument larger than a No. 10 (French) sound passed down the whole length of the urethra. The urine did not contain albumin or sugar. After urethral irrigation for four days, internal urethrotomy was performed on December 12th. Bulbous bougie, No. 20, entered the meatus; No. 18 passed one-eighth of an inch; No. 12, five-eighths, and No. 10, five and three-eighths inches. The meatus was incised on the floor and roof, and the Otis urethro-

tome could then be passed four inches and a half. It was screwed up and withdrawn, and then bulbous bougie No. 26 passed. The urethrotome was again employed, and after this cutting, a No. 34 (French) sound passed into the bladder. A foul discharge then escaped. The operation continued twenty-five minutes, during which time eight ounces of ether was consumed. The patient rallied well, and the next morning appeared comfortable and in good condition. At 1.30 P.M. he passed eight ounces of urine with some bleeding and pain. This was followed by a rise of temperature from 99° to 102° F. He was at once given 8 grains of quinin, and at 4 P.M. his temperature was again 99° F. That evening he had severe pain in the region of the kidney after urinating, and then another chill, with a rise of temperature to 102° F. He passed seventeen ounces of urine mixed with blood during the twenty-four hours subsequent to the operation. The next morning he appeared flushed and restless, but without definite complaint. On the right leg, near the ankle, an emphysematous crackling was detected along the course of the veins. There was no redness, edema, or swelling at that time, and this was the only point of crepitancy. Lead and opium applications were made to the part. The urethra was being regularly irrigated with Thiersch's solution. The temperature remained high, and sixty-three hours after the operation the man died. There was no redness, swelling, or unusual tenderness in the penis or groin. The autopsy showed nothing unusual in the urethra, but gas was found in the veins of nearly all the organs of the body. The kidneys were healthy. It seemed improbable that the infection took place at the operation, because the same technic and instruments were employed in another case on the same day without any untoward result. Considering the foul discharge behind the stricture, the theory of auto-infection of the wound seemed the most plausible. The speaker believed if the urethra had been opened through the perineum the man might have been saved, and this had been his principle of practice in similar cases since then. It was interesting to note that the strictures were situated in the anterior three and a quarter inches of the canal, where operations are generally considered trifling.

In regard to external urethrotomy, the principal objections to this procedure are as follows: The danger of hemorrhage, and the possibility of a troublesome fistula and the resulting confinement to bed. By the external operation at the present time is understood a short perineal incision made for the purpose of draining the urethra and bladder behind the stricture, but it is generally admitted that the strictures themselves are rarely situated in the region opened by this wound—namely, six or seven inches below the meatus. The perineal opening must be made when it is impossible to introduce instruments through the meatus to the bladder. It is also generally employed when the stricture is deeper than five and one-half inches, because of the danger of hemorrhage in such a deep-seated internal wound, and also on account of the danger of retention of the discharge and consequent sepsis. When cystitis is present the advantage of draining the bladder during a few days is obvious, and constitutes another in-

dication for the external operation. Again, if there is a foul discharge behind a narrow stricture, even though this is within two inches of the meatus, the perineal section should be employed. The longer confinement to bed is not a weighty objection to the operation. No matter how small and shallow the wound in the urethra may be, it is a wound which we are largely obliged to leave to itself during recovery, and hence the patient is safer in bed during a few days, even in the simpler cases. Moreover, the perineal section is chiefly advised for a class of cases which should be confined to bed because of the gravity of the lesion. The perineal operation is only difficult when performed without a guide, and in such cases internal urethrotomy is manifestly impossible. The difficulty arises only when no other operation is possible. The most serious objection is the possibility of a permanent or slowly healing perineal fistula. In a certain number of cases this is unavoidable, but they generally occur when drainage has been maintained a long time on account of a co-existing cystitis. Dr. Curtis endeavors to avoid fistulae by very early removal of the tube when cystitis is not present. The external incision is generally indicated when it is necessary to divide a deep stricture, to find the urethra behind an impassable stricture, or to drain the posterior urethra. The tube should, therefore, be removed within a day or two, and the perineal wound lightly packed with gauze. If chill or rise of temperature does not follow the next urination the tube is no longer required. If fever occurs, the tube should be reinserted, and another attempt made within a few days to discontinue its use. The speaker had observed, in some instances, such rapid healing of the perineal wound that there was no leakage after the first week. Not infrequently cases are seen in which the perineal wound must be rather extensive in order to deal successfully with strictures, fistulae, false passages, or other lesions. Such a wound may be almost closed with sutures, leaving, of course, a small opening posteriorly. The speaker has succeeded in closing permanent sinuses by means of the double-flap operation, although as a rule several attempts were required before success was achieved. The most serious difficulty in cases of impassable stricture is the location of the urethra without a guide—still one of the most difficult operations in surgery. The difficulty in passing these strictures is often due to the existence of false passages. In two cases observed by Dr. Curtis there had been extravasations of urine with complete sloughing of the perineal urethra. In one case there were many sinuses through which the patient urinated as from a watering-pot.

He has been able to subsequently observe only a few of his cases. Of those patients upon whom internal urethrotomy had been performed, twelve had been kept under observation, in four of whom relapse had occurred. Two had frequently used the sound during a period of two years and one-half, and a year and one-half respectively. The remaining six presented symptomatic cures. One patient who had had a stricture equaling in size a No. 16 (French) sound remained well without instrumentation two years, and finally died of phthisis. Another patient, on leaving

the hospital, could pass sound No. 30 (French), and the same instrument could be passed two years later, although dilatation had been practised only during the six months after the operation. Still another patient, in whom there had been a stricture of No. 14 (French), could pass sound No. 30 (French) four years after the operation. One patient could pass a No. 28 (French) five years after the operation, although treatment had not been continued. Another, with an original stricture of No. 14 (French), could pass a No. 22 (French) sound eight years after operation, although there had been no subsequent treatment. Another, who had had a stricture of No. 22 (French), could pass a No. 26 (French) sound ten years after operation, dilatation having been practised three years. This patient had had two attacks of gonorrhea in the interval.

Dr. Curtis said that he had been able to follow the subsequent history of thirteen patients upon whom urethrotomy had been performed. It was found that in one relapse had occurred, and that in eight there had been symptomatic cure, but examinations of these patients were not made. Of those examined, one could pass a No. 32 (French) sound one year after operation; another a No. 26 at the end of two years, no sound having been passed for six months. Another patient passed steel sound No. 26 (French) to the ligament and No. 18 to the bladder six years after operation. Considering the severity of the cases and the common neglect of after-treatment, he thought these results were quite satisfactory. Of course, regular dilatation subsequent to operation would probably have produced still better results.

DISCUSSION.

DR. F. TILDEN BROWN said that the plan of controlling hemorrhage from the anterior urethra described in the paper was new to him, and he thought it a valuable suggestion. He fully endorsed the reasons given for making perineal section, yet, personally, he was inclined to resort to this operation more frequently, even in the more anterior strictures. The object is to secure perineal drainage for a *brief* time. It was his practice to wait until the first sound had been passed, usually on the third or fourth day, before deciding upon the removal of the drainage-tube. If the passage of the sound does not cause a disturbance, he withdraws the tube and carefully dresses the wound so as to secure healing of the deeper parts first. He has not had trouble with perineal fistulae except in one case—a broken-down patient who had a suprapubic fistula of two-years' duration, a tuberculous testicle, and foul urine. Perineal drainage was maintained for some time, and a good deal of broken-down material was discharged through the fistula. A very simple operation was eventually sufficient to completely close the fistula.

The speaker referred to a patient who had worn a silver catheter continuously twenty-eight years, because of a traumatic stricture and severance of the urethra. The wound had at first been sutured, and subsequently a perineal operation performed, but the man had finally been advised to wear a catheter permanently. The stricture

was found to be at four and a half inches, but owing to the small size of the penis it was deeper than would have been the case in an ordinary adult man. A perineal incision was made, long posteriorly, for drainage. The anterior part of the incision opened the way to the stricture, which was very short. The mucous membrane over the stricture was cut transversely and laid back anteriorly and posteriorly. The dense layer was next dissected out from one edge of the longitudinal incision to the other, and the mucous membrane sutured together. A drainage-tube was inserted posteriorly, and kept in place eight or ten days. The man made an excellent recovery, and is now passing sound No. 32 (French) upon himself.

Regarding the occurrence of chill and fever in these urinary cases, Dr. Brown said that he believed that some cases of this kind cannot be explained on the theory of sepsis; they seem to be due rather to a nervous reflex. One great advantage of the perineal operation is that it admits of treating a contracted condition of the posterior urethra, not uncommonly found in old men.

DR. L. BOLTON BANGS said that he was quite in accord with the reasons presented in the paper for the performance of external urethrotomy. In his own practice he rudely grouped strictures into those of small caliber, those of large caliber, and traumatic strictures. Unless there is some emergency requiring it, he does not perform any cutting operation upon a urethra from which there is a discharge, no matter whether it is gonorrhœal or due to some mixed infection. He agreed with the reader of the paper regarding the treatment of strictures of small caliber, but he makes it a rule to paint the posterior urethra, from the bulbomembranous junction back to the neck of the bladder, with a solution of nitrate of silver. This coats the urethra with an albuminous substance, prevents infection, and renders the urethra less sensitive for a number of days.

Regarding the treatment of strictures of large caliber, Dr. Bangs said that he believed there were many of these cases in which an operation is not required. In every case the mucous membrane is diseased, and, irrespective of stricture, one would have to first treat the affected mucous membrane. It is his rule to measure the urethra at intervals of a few months, meanwhile treating the lesions of the mucous membrane. In this way he determines the necessity for operation by the degree of contraction. If this plan were followed, it would be found that fewer strictures of this variety require operation. Dr. Bangs exhibited an endoscopic picture of the urethra of an old man who had not had urethritis since his boyhood, and who had been operated upon most zealously by a skilful surgeon, but without relief. Two or three distinct ulcers were revealed by the endoscope, and then it became an easy matter to apply successful treatment.

DR. MURRAY said that he personally resorts more and more to external urethrotomy, never trusting to internal urethrotomy when the stricture is below four or four and one-half inches from the meatus. If it is fairly tight, he always does an external urethrotomy. In the removal of the tube he is governed entirely by the condition of the

bladder, but believes in as speedy removal as possible. Regarding the fatal case cited in the paper, he doubted very much if it were an example of auto-infection, and in this connection he agreed thoroughly with the criticism made by Dr. Curtis himself regarding the better result that would probably have followed perineal drainage.

DR. CURTIS, in closing the discussion, said that he usually passes a sound twenty-four or thirty-six hours after the operation, and then not again for a week. After this they are passed at intervals of a week. It seemed necessary to him to pass the first sound before the wounded surfaces have a chance to unite. He has had no case of tight stricture which seemed suitable for resection, nor any of large caliber, except the one case in which a No. 22 (French) sound could be passed. This patient, however, had strictures extending from the meatus to a point five inches backward. It seemed to him impracticable in a hospital service to postpone operative work until the mucous membrane behind the stricture has been put in a healthy condition, for the patient would often have to be kept under constant observation many months. Of course, if there is a profuse purulent discharge, the operation would have to be postponed for a time, but even then it is difficult to treat the condition until the stricture has been divided.

APPENDICITIS AND PERITONITIS WITH LOW TEMPERATURE.

DR. A. J. MCCOSH referred to a case, seen that afternoon—a young man who had had rather severe abdominal pain for about eight days, and had frequently vomited. The temperature had not been below 98° or above 99° F. He had been able to take a short walk the day before. He had been freely purged. When seen by the speaker at 3 P.M. the patient seemed to be seriously ill. A diagnosis of general peritonitis due to appendicitis was made. The belly was quite tense; the temperature was 98° F., and the pulse 110. The patient had been very carefully watched by a good physician and nurse, yet he had not been considered a sick man, because he had not had fever. He was operated upon at 5 P.M. About ten separate pockets of pus were found, holding, in the aggregate, three or four pints of thin, watery, and very offensive pus.

THE PRESIDENT asked if the surgeons could furnish any points which would aid in the early diagnosis of these serious cases.

DR. MCCOSH replied that vomiting and regurgitation of gas whenever pressure was made upon the abdomen, together with the general appearance, are perhaps the signs of most value.

DR. FRANK HARTLEY said that the increasingly rapid pulse, rigidity of the recti muscles, and a general cyanotic appearance are fairly reliable indications of the gravity of the condition. Many cases run a serious course without any marked rise of temperature. Many laborers work in the streets up to the day before coming to hospital, and yet the appendix is found to be gangrenous. The rise of temperature seems to depend chiefly upon the amount of absorption of septic material.

CASES OF REMARKABLE SUBNORMAL TEMPERATURE.

DR. A. ALEXANDER SMITH said that during the night of November 22d a patient had been admitted to Bellevue Hospital with a temperature of 91.4° F. There was some doubt about the accuracy of this record, so it was taken with four thermometers. The only complaint made by the patient was that he thought he was freezing to death. He had a very disseminated pulmonary tuberculosis, and also nephritis. He was placed in an improvised incubator, and his temperature gradually rose until, at the end of twelve hours, it reached 102° F. and his pulse 84. His pulse on admission had been 64. At no time was the pulse over 100. When the temperature reached 98° F. he became very bright, and expressed himself as feeling well. After reaching 102° F., it gradually dropped back to 96° F. He lived twenty-nine hours and forty-five minutes. An hour and a half before death the temperature was 98° and the pulse 72. The autopsy confirmed the diagnosis.

A few weeks ago a patient had been admitted during the night to the same hospital with a temperature of 90° F., as determined by three thermometers. He made the same complaint as the other man, and under the same treatment his temperature gradually rose. He also had pulmonary tuberculosis and nephritis, but the autopsy showed, in addition, a small cancerous deposit in the head of the pancreas. Both patients, of course, had been living under the most unfavorable conditions, particularly as regards nutrition.

DR. WALTER MENDELSON said that while an hospital interne he had seen a man who was admitted during the summer with a temperature of 90.5° F. The patient was rather dazed, but seemed otherwise healthy. It was ascertained that he had had nothing to eat for a week. Food soon restored his normal temperature, although during the week after entering the hospital there was a tendency for the temperature to fall to 97° or 98° F. As the patient recovered, it was observed that his mental condition was not normal, although possibly this had existed previous to the illness in question.

REVIEWS.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS, with Especial Reference to the Application of Remedial Measures to Disease and Their Employment upon a Rational Basis. By HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia, etc. With special chapters by DRs. GEORGE E. DE SCHWEINITZ, EDWARD MARTIN, and BARTON C. HIRST. Sixth edition, thoroughly revised and largely rewritten. Philadelphia and New York: Lea Brothers & Co., 1897.

THE eminent success of Dr. Hare's book on therapeutics is evidenced by the appearance of the sixth edition within seven years. This is to be attributed somewhat to the excellent arrangement of the subject-matter, the first part of the work dealing with therapeutic agents of recognized worth, the second containing the principal diseases, with a brief description of their pathology and sympto-

matology and their treatment in full. The present edition has been brought fully up to date and includes a full discussion of diphtheria antitoxin and of the newer remedies whose usefulness has been proven. Therapeutic measures of a non-medicinal nature are fully considered, and include cold, heat, mineral springs, and diet-lists.

The present edition will undoubtedly meet the same kindly fate as its predecessors, for the work is one of the few books which are really of value to the physician in his daily work.

THE CARE AND FEEDING OF CHILDREN. A Catechism for the Use of Mothers and Children's Nurses. By L. EMMETT HOLT, M.D., Professor of Diseases of Children in the New York Polyclinic, etc. Second edition, revised and enlarged. Flexible cloth; 104 pp. New York: D. Appleton & Co.

In the second edition of this practical little work the author has preserved the form of question and answer of the first edition. While this makes the book much less readable, clearness and simplicity are gained thereby, and it has the further advantage of making it easy to find quickly any given point to which reference is desired. If put in the hands of the mothers of young children, this book will serve not to take the place of the doctor, but to make his visits and advice pleasanter and more profitable for both parties.

THERAPEUTIC HINTS.

For Whooping-cough tussol is recommended in doses of $\frac{1}{6}$ -grain, for an infant one month old, to 8 grains for a child of five years. It may be administered in raspberry syrup one to three times daily.

For Tabetic Neuralgia.—

B Malacini	3 iss
Sod. bicarb.	grs. xlviij.
M. F. Chart No. xii. Sig.	One powder two to four times daily.— <i>Kuthy.</i>

To Remove Warts painlessly and with avoidance of scars apply a supersaturated solution of bichromate of potassium once daily.

Destruction of Small Vulvar Vegetations may be accomplished by the repeated application of the following powder after the parts have been bathed and well dried:

B Pulp. sabina	{	Iodoformi } aa	3 ss. *
Ac. salicylic.		M. Sig. External use.	

Ichthyl Applied to Anal Fissures, in conjunction with dilatation of the sphincter muscle under cocaine anesthesia, is said to act efficaciously, not more than ten treatments being requisite to effect a cure in recent cases.

For the Bites of Poisonous Insects it is recommended to paint the wound with pure ichthyl, or in case swelling and inflammation have occurred, apply ichthyl plaster, and administer the drug internally in 10-drop doses in spirits of ether.